

Line #	Our PO	Item number:	Description: Lot Number	Qty	USD Value Each	Total USD Value
1	N/A	N/A	<u>Ceramic Carbon Samples</u>	10	\$10.00	\$100.00
			<u>Samples, No Commercial Value!!</u>			
<u>Country of origin:</u>						
US						
<u>Tariff Code Summary:</u>						
7102.2900.00						

Line #	Our PO	Item number:	Description: Lot Number	Qty	USD Value Each	Total USD Value
1	N/A	N/A	<u>Ceramic Carbon Samples</u>	10	\$10.00	\$100.00
			<u>Samples, No Commercial Value!!</u>			
<u>Country of origin:</u>						
US						
<u>Tariff Code Summary:</u>						
7102.2900.00						

From: (408) 986-2410
Thomas Obeloer
ELEMENT SIX
3901 Burton Drive

Origin ID: ZSMA



314101402070126

SANTA CLARA, CA 95054
UNITED STATES

SHIP TO: 01628771234
Dr. Philip Martineau
DTC Research Center
Belmont Road
Berkshire

BILL SENDER

MAIDENHEAD, SL66JW
GB

Ship Date: 13JUN14
ActWgt: 1.0 LB
CAD: 5040919/INET3490

REF: Dan Twitchen sample
DESC-1: Ceramic Carbon Samples
DESC-2:
DESC-3:
DESC-4:

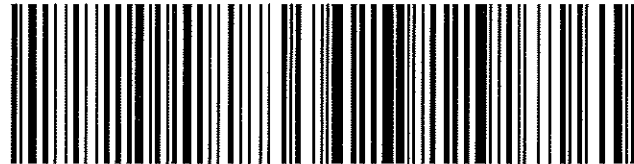
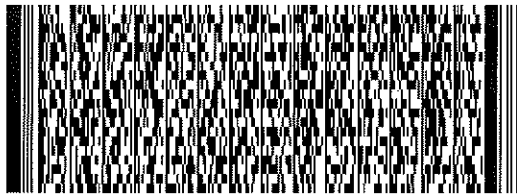
EEI: NO EEI 30.37(a)
COUNTRY MFG: US
CARRIAGE VALUE: 100.00 USD
CUSTOMS VALUE: 100.00 USD
T/C: S 241496295 D/T: R
SIGN: Thomas Obeloer
EIN/VAT:
PKG TYPE: BOX

AM
INTL PRIORITY

TRK# 7703 0086 7635
0430

SL6 6JW
-GB
STN

X7 BEQA



These commodities, technology, or software were exported from the United States in accordance with the export administration regulations. Diversion contrary to United States law prohibited.

The Warsaw Convention may apply and will govern and in most cases limit the liability of Federal Express for loss or delay of or damage to your shipment. Subject to the conditions of the contract.

FEDEX AWB COPY- PLEASE PLACE BEHIND CONSIGNEE COPY

522G5/9BC4/F220

After printing this label:

FEDEX AWB COPY - PLEASE PLACE BEHIND CONSIGNEE COPY

1. Fold the printed page along the horizontal line.
2. Place label in shipping pouch and affix it to your shipment.

The logo for Diamtec GmbH features the word "diam" in a bold, blue, sans-serif font. Above the letter "i" is a stylized blue icon consisting of two parallel lines forming a downward-pointing chevron. To the right of "diam" is the word "tec" in a bold, black, sans-serif font, followed by "GmbH" in a smaller, black, sans-serif font.

❏ **Ila Year of establishment in Singapore: 2005**

Technical: Ila Technologies – www.2aTechnologies.com

Gems and Jewelry Industry: GEMESIS – www.gemesis.com

Microwave Plasma CVD technology for Poly Crystalline and
Single Crystal Diamond

❏ The Group owns ALL the technology chain from start to end

❏ **Ila Technologies, Singapore**

❏ 2012: Asian headquarter

❏ **Microwave Enterprises LTD**

❏ 2013: American headquarter in Morrisville, NC

❏ **Diamtec GmbH**

❏ 2014: European headquarter in Pforzheim, GER

Ila Technologies, Singapore

- ❑ Research: Prof. D.S. Misra
- ❑ R&D manager: Dr. Alvarado Tarun
- ❑ Application engineer: Lin Lin
- ❑ Senior Business Development Manager: Peter Sim

Diamtec GmbH, Germany

- ❑ Business Development / Sales: Detlef Hüffer
- ❑ R&D / Blue Ocean Strategy: Dr. Juergen Schöchlin

Microwave Enterprises LTD, NC

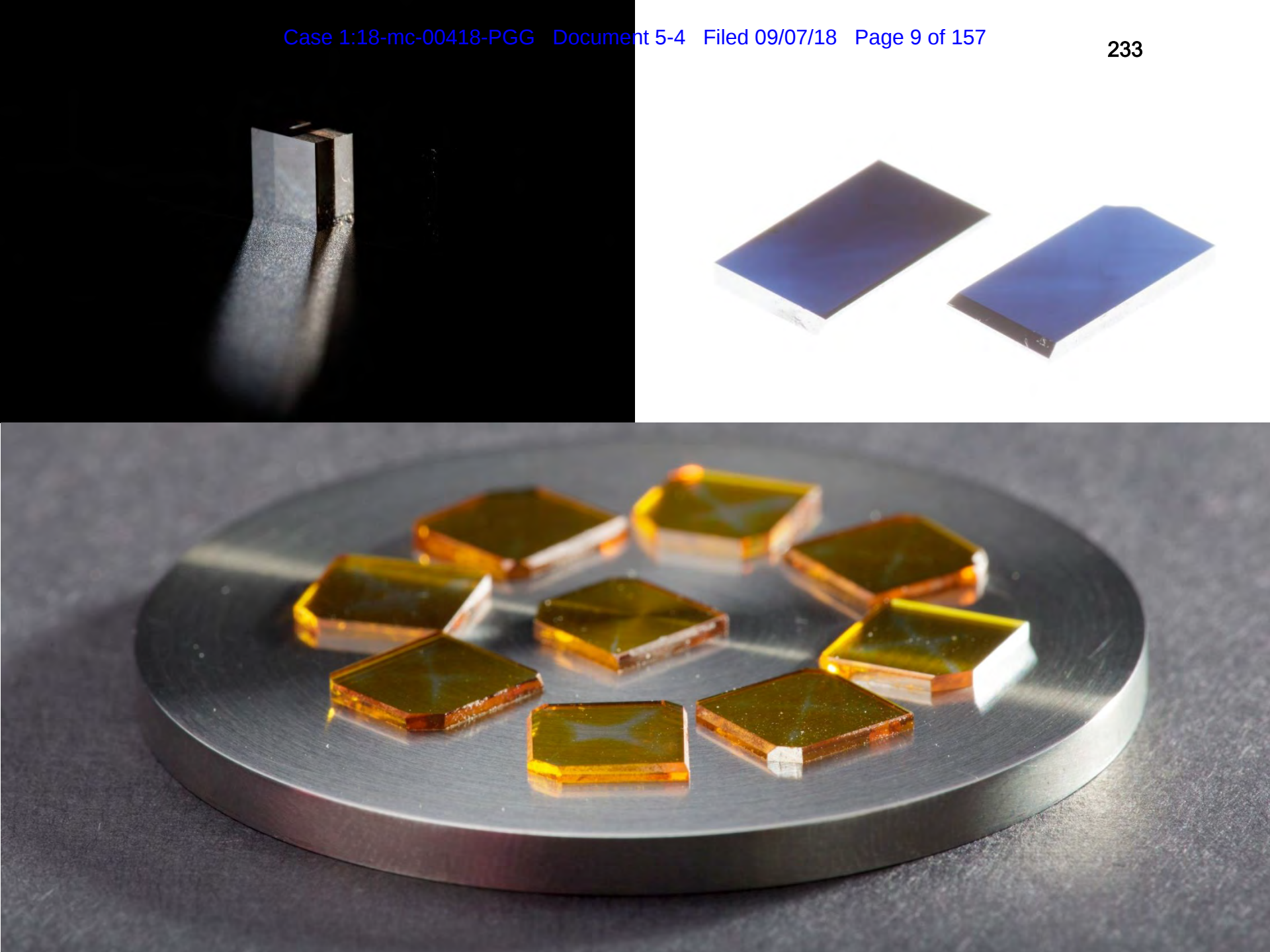
- ❑ Business Development: Dick Garard
- ❑ Sales: Keith Harris

Ila Technologies runs a fully integrated technology chain

- ▣ Seeds for CVD diamond growth **HPHT Technology**
- ▣ **X-ray Crystallographic Technology** for instant and accurate crystal orientation within 3 (1) degrees accuracy
- ▣ **Microwave Plasma reactors** for maximum efficiency
- ▣ **Laser cutting** and diamond **polishing facilities**

- ▣ One of the world's largest facilities for both HPHT and CVD diamond growth
 - ▣ Size of up to 7mm x 7mm (**9mm square soon**)
 - ▣ Thickness up to 4mm
 - ▣ <100> growth direction
 - ▣ <100>, <110> and <111> top/bottom oriented plates





Product Characterization / Quality Control

M grade

- Microscopic inspection
- Crystal orientation (X-Ray Laue camera $< 3^\circ$, better on request)
- Birefringence / internal stress
- Fluorescence – if required (UV or RAMAN @ 514nm)

O grade (additionally)

- Optical transmission
- transparency
- N concentration $< 1\text{ppm}$

E grade (additionally)

- substitutional N concentration $< 5\text{ ppb}$
- Surface polishing, surface quality – roughness/damages
- purity, uniformity
- Time stability - max electric field - leakage current

Product Characterization E grade

Dimensions and thickness	Upto 7mm×5mm×1.5 mm (+/-0.1 mm)
Surface Roughness (Ra)	< 2.5nm (both sides polished)
[N] (single substitutional)	< 1 ppb
Charge Collection Distance	
@ E = 0.2V/mm (Alpha and Beta)	Full collection
Charge Collection Efficiency	
@ E = 0.2V/mm	100 %
Carrier Lifetime (ns)	e = 21.4 +/- 5.5 ns h = 25.65 +/- 1.3 ns
Drift Mobility and velocity	
@ 300 K (cm²/s)	e = 2000 +/-100 h = 2600 +/-30
Thermal Conductivity @ 300K	>2200 Wm ⁻¹ K ⁻¹
Transmission @ 10.6um (FTIR)	> 71 %
Rocking curve width	< 40 microRadian

Products under development

I grade

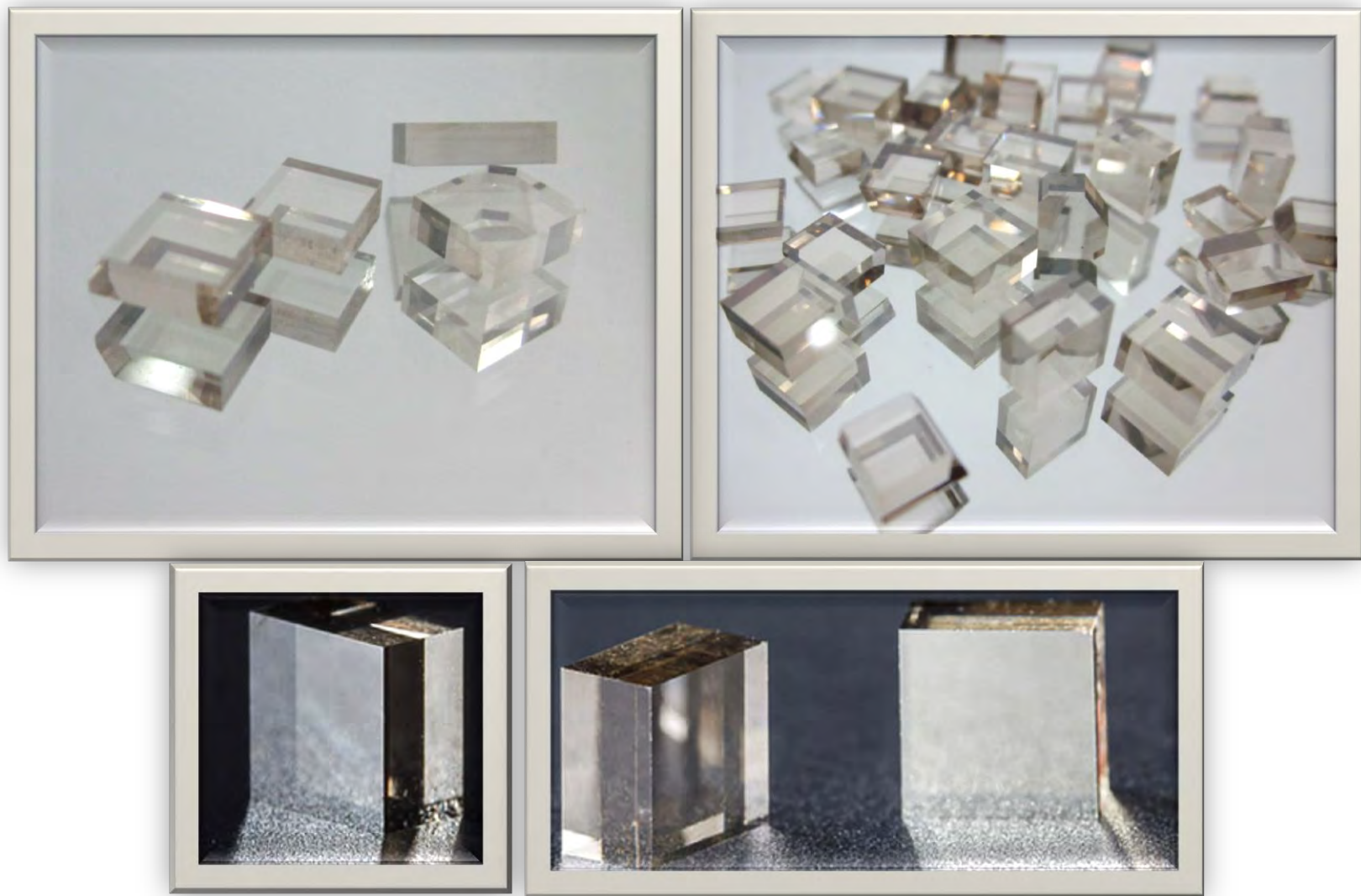
- C12 isotopic sc CVD diamond
- under development
- Requirements / Comments?

C grade

- Boron doped sc CVD diamond - about 10^{16}
- still under development
- Available next year
- Requirements / Comments?

Sales terms

- Availability: on stock – on request
- Delivery times: 2-8 weeks
- Prices: competitive, volume based
- Distribution within Europe: Ger-Pforzheim
- Payment: 10 days net



Diamtec GmbH, Germany – the European office of Ila Technologies, Singapore

Thank you very much for your attention

Please get in contact with us for detailed information:

[Diamtec GmbH](#)

[Am Irma Feldweg Str. 8](#)

[75179 Pforzheim](#)

[Germany](#)

Phone: +49 (0) 7231 15540-210

- dh@diamtec.com
- js@diamtec.com



Diamond Trading & Prices ▾

News & Magazine ▾

Sign In Sign Up



Newsroom Full Article

Synthetic Diamond Producer Creates Trade Representative Body Prohibits the Use of the 'S'-Word

February 12, 15 by Chaim Even-Zohar



Hallelujah! The gem-quality synthetic diamond producers have finally acted in unison by creating a strong joint voice on the challenging issues they face; or so it seems...

The International Grown Diamond Association

A new trade body, the International Grown Diamond Association (IGDA), has a website where it introduces itself as "a not-for-profit organization that will seek to represent and promote the Grown Diamond industry and work towards creating awareness about Grown Diamonds. Founded in Singapore, IGDA seeks to serve as the central point of communication for the industry and a global platform to discuss all issues concerning the Grown Diamond industry and its stakeholders." (The letters "G" and "D" consistently appear in capitals on IGDA's elaborate website every time grown diamonds are mentioned.)

The IGDA endeavors "to lead IGDA members and Grown Diamond industry at various global forums (such as industrial, government and retail) and represent the industry on issues that impact the trade." Actually, the association's mission statement identifies about 10 different objectives, including to "encourage and monitor ethical industry practices and standards among IGDA members."

It seems that those industry players, diamantaires, organizations and publications that, from time to time, had suspicions of – or exposed – the apparent misbehavior of some synthetic diamond producers finally have a responsible peer body that will investigate complaints and ensure that its members comply with best practices. This is excellent news.

"IGDA members will be required to abide by and uphold the following prescribed Code of Ethics and Fair Business practices," states the website.

"It is the duty of every IGDA member to protect the Grown Diamond industry against fraud, misrepresentation, and unethical trade practices. To this effect (a) members shall strive to act fairly, honestly and ethically in all business dealings, provide full disclosure, and accurately and honestly represent their products in all advertising, promotion and sales, and (b) members shall respect and comply with all applicable international, national and local laws, rules and regulations which are relevant to the diamond industry and to the lawful conduct of business generally," explains IGDA's website.

At first, I thought that except for congratulating the gem-quality synthetic diamond producers, there wasn't really a newsworthy story here. But then I got to the fourth and fifth articles in the IGDA's Code of Ethics and Marketing Guidance.

Prohibition of the Term "Synthetic"

Says the Guidance, "The term 'Synthetic' with respect to Grown Diamonds, is technically incorrect and misleading to the consumer. Members of IGDA will not use this term or any variation thereof to describe Grown Diamonds or products set with Grown Diamonds."

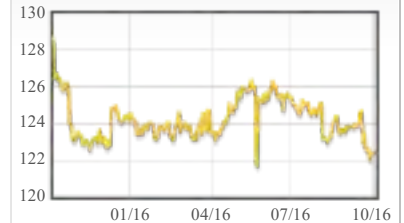
Wow! How can following the United States Federal Trade Commission's (FTC) rules, enacted to protect consumers and prohibit deceptive advertising, be considered "misleading"? Isn't this IGDA requirement inconsistent with the other cornerstone of the Code of Ethics, namely that members must adhere to "all applicable international, national and local laws, rules and regulations which are relevant to the diamond industry"?

To reinforce this message, IGDA adds that, "the marketing guidance prescribed by IGDA will take priority for its members and respective Grown Diamond businesses." The very term "grown diamonds" might well be an infringement of FTC rules. These rules require that the word "diamond" is immediately accompanied, with equal conspicuousness, by the words "laboratory-grown," "laboratory-created," or "[manufacturer-name]-created,"

Search News & Archives

Diamond Index

122.37 ↑ (0.04)



Related Articles

Pure Grown Diamonds Launching Pink Diamonds

October 22, 14 by Albert Robinson

[Read More...](#)

Indian Trade Bodies Warn against Mixing Synthetics with Natural Diamonds

January 08, 15 by Rachel Segal

[Read More...](#)

Ila Technologies: The Murky Path to 'Unlocking Nature'

October 30, 14 by Chaim Even-Zohar

[Read More...](#)

Newsletter

The Newsletter offers a quick summary of the past week's industry news and full articles.

“synthetic,” or by some other word or phrase of like meaning, so as to clearly disclose that it is not a natural gem.

As a Gemological Institute of America (GIA) executive recently remarked, “Natural diamonds are grown within the earth.” Whether the term “grown diamonds” by itself can be accepted by the FTC is something IGDA ought to raise with the US authorities. By requiring its members to deviate from the four FTC approved terms, the association is taking on awesome responsibility – and it might create legal vulnerabilities for its members. So who are the IGDA’s members and main office holders?

Ila Technology’s CEO Heads Association

The website immediately takes away any suspense. “Founding president of IGDA, Vishal Mehta, a dynamic professional has been associated with the Grown Diamond industry for over 8 years. Currently serving as the CEO of Ila Technologies, a leading grown diamond technology company, he’s committed to spread awareness about Grown Diamonds and promote their applications across a diverse set of applications and industries.” Vishal, of course, is better known as the son of Jatin Mehta and his wife Sonia and brother to Suraj.

Indeed, this is the very same Jatin Mehta, we should add, who is the founder and promotor of India’s Winsome Diamonds and Jewellery Ltd. (previously Su-Raj Diamonds and Jewellery Ltd.) that is under criminal investigation in India related to the mysterious non-payment of some \$1.2 billion by some 13 Dubai customers who had bought diamond jewelry on credit terms. This led Winsome (and related companies) to default on a similar amount of debts to some 15 banks. As Jatin Mehta had personally guaranteed some or all of the Winsome loans, both Winsome and Jatin Mehta have been named willful defaulters by the Indian banking authorities.

Jatin’s personal involvement – and history – in synthetic diamonds is well known, but according to IGDA’s founding president, the key stakeholders in synthetics were and are solely Vishal himself and his mother Sonia.

The ‘Other’ IGDA Founding Members

Still under the heading “Founding Members,” the IGDA website stresses that “IGDA will be also supported in its mission by veterans and diamond industry experts like Richard Gerard, Professor [Devi] Misra, Lisa Bissell among many other distinguished members. They not only bring their knowledge and experience to the association but will be also elemental in guiding every single IGDA member as the Grown Diamond industry expands.”

By our count, the association has four founding members. Lisa Bissell is, of course, president and CEO of Pure Grown Diamonds. Gemesis Inc. promoter (and Vishal’s brother), Suraj Mehta, announced last year that Lisa will spearhead the rebranding campaign of Gemesis Inc. into Pure Grown Diamonds Inc. At the end of the day, IGDA founding member Lisa Bissell ultimately works for the Mehta family. Suraj Mehta is her boss, although, officially, none of the Mehta family members have seats on the Pure Grown Diamonds Inc. board.

Then there is the third IGDA founder, noted professor Devi Misra, who is credited in an article by India’s Livemint, entitled “Vishal Mehta – The Conflict-Free Diamond Maker,” as getting the Jatin Mehta family into gem-quality synthetics to begin with, “after a chance meeting in 2003 between his [Vishal’s] mother and Devi Shankar Misra, then a professor at the Indian Institute of Technology (IIT)-Bombay.”

Says Vishal in the article, “Between 2003 and 2005, Prof. Misra and my mother Sonia Mehta spent time to discuss and assess diamond-growing technologies, what could be done, what were some of the possible directions to research on, etc. During this time, a feasibility study was carried out that resulted in setting up our own unit as it was clearly the only way to work systematically, and with our own customized objectives and applications. A better part of 2005 was spent looking for the right location for this research pilot project,” he is quoted as saying.

There is no mention of his father, Jatin, in the article. The omission seems to be part of the family’s strategy to remove Jatin Mehta from any past, present and future involvement; their history clearly needs to be rewritten. Vishal Mehta explains that Misra, who has an equity interest in Ila Technologies, “joined the company full time in 2010.” So the third IGDA founder and member is also working full-time for the Jatin Mehta Family.

Microwave: The Manufacturer of CVD Growers

The fourth member mentioned is Richard Garard (mistakenly spelled Gerard on IGDA’s website) whose credentials, just as with Bissell and Misra, are not specifically mentioned. Richard Garard is the CEO of the Morrisville, North Carolina-based Microwave Enterprises Ltd. (MWE).

MWE develops, processes and manufactures equipment used in the production of lab-grown diamond materials. The company’s patented microwave technology is used for a

range of products, and specifically for the deposition and production of CVD diamonds; it has probably the best technology in the world for mass-production of gem quality synthetics.

Before 2013, MWE was just a supplier to Ila Technologies and Gemesis. Then something changed. "In 2013, the company teamed with one of our customers and the largest producer of lab-grown diamond materials in the world, Ila Technologies," states MWE's website. From then on, Lisa Bissell and Richard Garard have something in common: they both "provide the US market with CVD diamond material produced by Ila Technologies," to quote from MWE's website. But there is more: the MWE website further reveals that "Microwave Enterprises is pleased to have a relationship with Ila Technologies and the corresponding ability to offer their diamond materials to our customers." What precisely is the relationship?

Ila Technologies' Ownership of MWE and Diamtec GmbH

Checking the company registration with the North Carolina Department of the Secretary of State, MWE turns out to have become a foreign-owned entity, probably since June 2012 (when the last change was reported). Over the past few months, DIB has received various reports that MWE had also been acquired by Jatin Mehta or the Mehta family. If this is the case, it is a brilliant move: as the world's leading and largest producers of CVD gem-quality diamonds, owning or controlling the sources of production – the manufacturers of the growers – would consolidate and strengthen Ila Technologies' grip on the market.

This would, however, have required considerable financial resources. Such an acquisition could not be "hidden" – certainly not over time. For those who are intimately familiar with Jatin Mehta and his operations, the most fascinating parts of the Vishal Mehta interview in Livemint are the exciting and essential facts that were omitted.

One of these omissions was the establishment of the Diamtec GmbH, which is the research arm of Ila Technologies in Pforzheim, Germany. This German company, established in May 2014, is fully owned by the Ila Technologies Group. The first public information on this German company came from participants at a diamond research convention that took place at the European Centre for Theoretical Studies in Nuclear Physics and Related Areas in Trento, Italy, in November last year.

One of the impressive speakers was Diamtec's business development director Detlef Hüffer. His revelations will be reserved for another story. What is important, however, is that he publicly confirmed that, in 2013, MWE was acquired by Ila Technologies in Singapore. Thus, the fourth founding member of IGDA, Richard Garard, is essentially also working for Jatin Mehta. There are no other individuals mentioned in the website.

Frost and Sullivan in Support of IGDA Members

To guide IGDA, it has also established an Advisory Panel. So who is on IGDA's Advisory Panel? At this point, only one company. It is the research company that in the last few years has published several reports on the impact of natural and synthetic diamond mining on the environment and which has shown how consumers have developed good feelings toward synthetic diamonds. Says IGDA, "Frost and Sullivan, a leading consultancy and research outfit, will support IGDA and members with relevant industry knowledge and business strategy consulting."

Continues IGDA: "For more than 50 years, Frost and Sullivan has been developing growth strategies for the global 1000, emerging businesses, the public sector and the investment community. Frost and Sullivan will be one of the Professional Partner Positions supporting IGDA in its efforts to develop the Grown Diamond industry," says IGDA. It certainly has.

A Marketing Genius Called Jatin Mehta

There is no doubt that Jatin Mehta is a marketing genius. Moreover, he has – for reasons best known to himself – become "invisible," working through family members and proxies. However, his fingerprints are on every move that his family or their companies make. Nothing happens "just by coincidence" or "accidentally."

A few months ago, we disclosed many of the websites Jatin Mehta had "reserved" for future use; we disclosed the outright excellent marketing slogans that he had trademarked with patented logos – all for future use. One such site that we disclosed was the "Better Diamond Initiative (BDI)" website – supposedly a "collection of thoughts, opinions and news based on views, facts and reports published around the world on the diamond and related industry."

In preparation of this article, we didn't call IGDA or Ila Technologies. For reasons known only to them, they have stopped talking to us and don't respond to media inquiries. The main reason for us not asking them is different altogether. As soon as an investigative journalist discovers a website, link, or network registration that links directly to Ila Technologies, it gets changed or removed. In Singapore, in that respect, their alertness is

For instance, when the website <http://www.growndiamonds.org/> was discovered, it was quickly closed down. We trust that the same fate will befall on the IGDA website <http://igda.joji.com.sg/about-igda/> or <http://igda.joji.com.sg/members/code-of-ethics/>.

The Ila Technology computer experts have made the website invisible for either Google search engines or Google archives. For a genuine and legitimate non-profit trade association, it seems like an odd step. Undoubtedly, they want to time the “launch” to take place at a time and place convenient to them. They do what they have to do – and the press does what it is supposed to do as well.

We have followed the website now for many months, but haven’t seen a formal announcement. We are not aware of a single synthetic diamond producer who has joined the Association so far. Having it dominated by Ila Technologies will certainly create some competition and legal issues.

Just think about how ingenious all of this is: if the IGDA wants all producers (essentially all of Jatin Mehta’s competitors) to label their output as “Grown Diamonds,” he has miraculously positioned his own product in a distinct, competitive reputational and marketing advantage. All the competitors’ synthetic diamonds are just ordinary Grown Diamonds. He, however, is the only one to have Pure Grown Diamonds... You have to give him credit – he has, perhaps, created the “Forevermark” of synthetics!

The Gemesis Connection

In the Livemint article mentioned above, reference was made to the 2012 discovery of some 1,000 undisclosed synthetic diamonds sold and invoiced as natural diamonds. (DIB previously reported that these stones were sold by Winsome Diamonds and Jewellery Ltd.’s wholly owned Su-Raj Diamonds in New York to an Antwerp dealer.) Livemint recalls the media reports that “linked these stones to Florida-based Gemesis Diamond Company.” In various company publicity, and in the interview, this fraud is referred to as “the incident.” (In some “friendly” articles, it is even argued that it never happened.)

“After the incident, the [Gemesis] firm was bought out by an entity controlled by Vishal Mehta and his mother, and its manufacturing facilities relocated to Malaysia,” writes Livemint. Says Vishal, “On the group level, we did acquire that [Gemesis] technology and transfer it to our facility in Malaysia.”

Technically and legally, Vishal is correct: through a reverse takeover, a special purpose vehicle Gemesis Acquisition Corporation merged with and into Gemesis Diamond Company. The greatly diluted minority shareholders of Gemesis were indeed invited to sell their shares completing Mehta’s buy-out of Gemesis. However, Vishal Mehta apparently had forgotten that his own father, Jatin R. Mehta, had bailed out the Florida-based Gemesis in January 2010, when India’s Su-Raj Diamonds and Jewellery, through Vishal, committed to invest a sum of \$8.4 million over a period of three years in Gemesis.

In return, in January 2010, the family received 50.1 percent of the company’s equity on a fully diluted basis. Then Jatin Mehta assumed hands on control making all major decisions – and this was over two years before the so-called “incident” took place. Subsequently, the Ila Technologies, on the group level, rebranded Gemesis as Pure Grown Diamonds Inc., which is now a distributor of Type IIA gem-quality grown diamonds in the United States.

 Share |    

About IDEX
Our Services
Terms & Conditions
Privacy & Security

Advertise on IDEX
Industry Links
Members Directory
Calendar

Register
Contact Us



» IDEX ONSITE «
EMBEDDED DIAMOND SEARCH / INVENTORY FEED
DIAMOND RING DESIGNER

NEW TWO-STONE PENDANT

Nov

OVERNIGHT
MOUNTINGS · SEMI-MOUNTS · FINISHED JEWELRY

JCK

THE INDUSTRY AUTHORITY (/)

JCK (/)

f t y g+ i p

(http://www.jck.com/)

SUPER FAST REFINING IS CLOSER THAN YOU THINK!

DIAMONDS (/TOPICS/DIAMONDS)

TECHNOLOGY (/TOPICS/TECHNOLOGY)

Interview With a Director of the New Lab-Grown Diamond Association

“We won’t replace mined diamonds,” says Richard Garard, the group’s new secretary general

(/authors/rob-bates)

(/authors/rob-bates) Rob Bates (/authors/rob-bates) | February 10, 2016 | CUTTING REMARKS (/BLOGS/CUTTING-REMARKS)

bates)

Richard S. Garard, CEO of equipment manufacturer Microwave Enterprises, was recently appointed secretary general of the International Grown Diamond Association (<http://theigda.org/>), the just-formed (<http://www.jckonline.com/2016/02/04/collective-grown-man-made-diamond-producers-band-together>) umbrella organization for the lab-grown diamond industry. For now, the group will operate out of his company’s Morrisville, N.C.–based office. In this interview, Garard talks with *JCK* about why the group came about, the age-old controversies over nomenclature, and why he believes that the traditional industry should not fear man-made gems.

JCK: What are the goals of the new group?

Richard Garard: To properly represent and the grown diamond industry to be clear about the properties of the material itself and to help grow the industry.

JCK: Do you expect to hire professional staff?

Garard: Eventually, yes, but not in the near term.

JCK: What do you think the industry needs to know about the lab-grown diamond business?

Garard: This is add-on market for the industry. For the foreseeable future, we are a small portion of diamond output. I don't think we are going to replaced mined diamonds, but consumers will have a choice over whether they want a mine-grown diamond or lab-grown diamond. For the industrial and scientific fields, they need the consistency that is available through producing diamonds in the lab.

JCK: Will this new group be focused on the gem or industrial markets?

Garard: Both. Most of our members are currently pursuing the gem business. But that is because there is a market there. Going forward [when natural supply declines], there will a void that needs to be filled. There is also significant potential in the industrial and scientific markets. We will do both, certainly. The initial market, the gem industry, is where most of our companies are.

JCK: Yet some of the bigger companies in the industrial sector—such as Element Six or U.S. Synthetic—are not currently members.

Garard: We welcome all grown-diamond brands. It is an open platform. All members must agree to our code of ethics and best-practice principles. Any grown diamond company that wishes to join is welcome to do so. No one is restricted. But we do look to them to have a like mind.

JCK: Those companies use the word *synthetic*. Yet, your code (<http://theigda.org/code-of-ethics-best-practices-agreement/>) calls this term “incorrect and misleading.” Would that prevent them from joining?

Garard: One of our objectives is to have proper terminology. If you look at the website or talk to any of our members, you will note that the word *synthetic* is not a welcome word. It is tied to products like moissanite and cubic zirconia. Each applicant will have to take that into consideration. Having proper, accurate terminology is something that the founding members believe in.

JCK: Your organization uses the term *grown*. Yet, the Federal Trade Commission has not approved that term; it favors (<https://www.law.cornell.edu/cfr/text/16/23.23>) *lab-grown*. Will that be an issue?

Garard: I'll have to look into that. You are probably correct that most people use *lab-grown*. Some people use *cultured*. Some people just use *grown*. Some people say *lab-created* or *greenhouse-created*.

We will do our best to work with the various agencies to clarify terminology issues. We'll need to pursue that. There is no question that we all want to be clear on representing that these are lab grown-diamonds.

JCK: Some members have said this could represent your industry in communications with the International Organization for Standardization (ISO), which recently put out a nomenclature code (<http://www.jckonline.com/blogs/cutting-remarks/2016/01/20/isos-new-diamond-standard-stricter-fits>) that some of your members did not agree with. What, in particular, do you object to in that standard?

Garard: We are still in communication about how we deal with that. To my knowledge, the number of [our] members that reviewed their draft was zero. That's a shame.

JCK: Is there anything you hope the Federal Trade Commission will change in its guides?

Garard: I personally have not interacted with the FTC. I would need to follow up with others on that.

JCK: The group's three-person executive board consists of the CEO of IIA Technologies (<http://zatechnologies.com>), Vishal Mehta; yourself (your company is a partner of IIA); and a principal of Golconda, which also buys from IIA. I have heard concerns from members that one company is dominating the group.

Garard: Any association within any industry needs somebody committed to take the reins and drive it. You can't get 20 people who are busy running their business to do it, particularly in the beginning. We are very pleased with the response we have received. The patron members have provided that impetus and will lead for a while, but this is going to be an international growing association.

JCK: Just to clarify something that has appeared in print elsewhere (<http://www.idexonline.com/Memo?id=40410>): Is your company owned by IIA or one of its related companies? A presentation from Germany (http://www-adamas.gsi.de/ADAMASo3/talks/Hueffner_DIAMTEC.pdf) indicated it is.

Garard: They have no ownership whatsoever. The gentleman [in Germany] assumed we were more than a distributor and made that statement incorrectly. We certainly sell to them and buy from IIA, and we are close to them as a result. But I try to be close to all my customers. We are also starting to buy CVD diamonds from other companies besides IIA.

JCK: Sometimes, there appears to be an adversarial relationship between the natural and mined industries. How do you attempt to bridge that?

Garard: I hope it's not adversarial. I don't think the lab-grown market will ever replace the mined diamond market. When the mined diamond supply goes down, we hope that lab-growns fill some of that void. We intend to coexist, but we want to do it on an equal playing field.

This is the Exhibit marked “SFW-40”

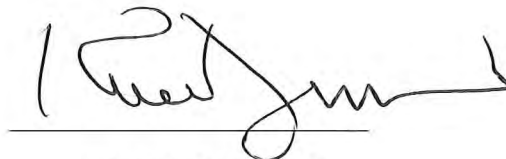
referred to in the Affidavit of

Susan Jane Fletcher Watts

affirmed in the United Kingdom

on this 27 day of March 2018

Before me

A handwritten signature in black ink, appearing to read 'Richard Griffiths', written over a horizontal line.

A NOTARY PUBLIC

RICHARD GARETH GRIFFITHS
Solicitor & Notary Public
Downend Lodge
Chieveley
ENGLAND RG20 8TN

Exhibit No.	Description	Page No.
40(a)	Analysis of Pure Grown Diamonds Gemstone NL702	248
40(b)	Summary of Evidence that NL702 had been Heat Treated (Annealed) after Growth	258
40(c)	Summary of Evidence that NL702 was Coloured Prior to Annealing	265
40(d)	International Gemological Institute Report # LG10226420	267
40(e)	SA-1510-00178	268
40(f)	Commercial Invoice no PO8712 PGD Inc	270
40(g)	Pure Grown Diamonds Packing List for Product code LG10226420	271
40(h)	Waybill no 7815 9438 9996	272

CONFIDENTIAL

De Beers Technologies UK

TECHNICAL REPORT

Title: Analysis of Pure Grown Diamonds Gemstone NL702
Authors: Philip Martineau and Brad Cann
Date: 5 October 2016

1. SUMMARY

A synthetic round brilliant (NL702) with a weight of 0.38 ct, was examined at De Beers Technologies UK. It had been sold to Ayako Lawson by Pure Grown Diamonds and it was received with an IGI grading report (report number LG10226420) that indicated that IGI had given it K colour and VS1 clarity grades. The girdle of the stone was laser inscribed "LAB GROWN LG10226420". The characteristics of this synthetic diamond round brilliant were very similar to those of Gemesis CVD synthetics we have examined in the past. DiamondSure referred the synthetic diamond as type IIa, and DiamondPLus has referred it as a CVD synthetic diamond due to the presence of the 737 nm photoluminescence line. DiamondView images showed striations providing evidence that the round brilliant was CVD synthetic in origin. FTIR spectroscopy indicated a concentration of single substitutional nitrogen of 0.5 ppm. A plate (with a thickness of 0.71 mm, a diameter of 4.56 mm and a weight of 0.18 ct) was processed from the stone. After processing and cleaning, the girdle inscription was only partially visible, suggesting that it had been extremely shallow and had originally been visible principally because of surface graphitisation which had been removed in cleaning. EPR spectroscopy at Warwick University has shown that the parallel-sided plate of CVD synthetic diamond contained neutral single substitutional nitrogen at a concentration of 460(40) ppb ($8.1 \times 10^{16} \text{ cm}^{-3}$). Measurements carried out by Laser Zentrum Hanover indicated that the absorption coefficient of the plate at $1.06 \mu\text{m}$ was $0.044(5) \text{ cm}^{-1}$. Optical analysis was performed on the plate at Warwick University using a Metripol microscope. The results indicated that the plate produced from NL702 possesses good optical quality. Only first order birefringence was observed. Over a $1.3 \text{ mm} \times 1.3 \text{ mm}$ selected area $\sin \delta$ and $|\sin \delta|$ do not exceed 0.141(20). Over a selected $2.5 \text{ mm} \times 2.5 \text{ mm}$ area $\sin \delta$ and $|\sin \delta|$ do not exceed 0.447(20). For the $1.3 \text{ mm} \times 1.3 \text{ mm}$ area the maximum Δn value was $1.87(30) \times 10^{-5}$ and for the $2.5 \text{ mm} \times 2.5 \text{ mm}$ area the maximum Δn was $6.13(30) \times 10^{-5}$.

CONFIDENTIAL

De Beers Technologies UK

2. INTRODUCTION

A round brilliant polished gemstone of 0.38 ct weight was received from Ayako Lawson at De Beers Technologies UK on 2 November 2015. It was assigned sample number NL702. Along with the sample, documentation indicating its origin was supplied. This included an invoice and packing note from Pure Grown Diamonds (please see Figures 1 & 2). Both were dated 27 October 2015. An IGI certificate (Figure 3) was also supplied with the sample. The sample carried a laser inscription on its girdle: "Lab Grown LG10226420. Details of the sample are listed in Table 1.



PURE GROWN DIAMONDS INC.
 28 WEST 44TH STREET,
 SUITE 1204,
 N.Y.C. NEW YORK
 USA
 Phone No: 646-652-8927
 Fax No: 646-608-3449
 Email :
 Web Site : <http://www.puregrowndiamonds.com/>

Invoice

Invoice No : SA-1510-00178
 DATE : 27/Oct/2015
 Remark# :
 Payment Terms : 0
 Packing List No. :

Buyer MRS. AYAKO LAWSON 2 ASTOR CLOSE MAIDENHEAD, SI61XQ U.K. Tel : 441628298790 Fax : EMail :		Consignee MRS. AYAKO LAWSON 2 ASTOR CLOSE MAIDENHEAD, SI61XQ U.K. Tel : 441628298790 Fax : EMail :			
SNo	Description	Pcs	CTS	RATE US \$ / CTS	AMOUNT US \$
1	LAB GROWN CUT & POLISHED DIAMONDS	2	0.840	1,958.44	1,645.09
	DISCOUNT AMT				(0.00)
	SHIPPING AMT				100.00
	OTHER CHARGES AMT				0.00
	TAX AMT				0.00
	TOTAL	2	0.840		1,745.09
Amount In Words:- US DOLLAR - ONE THOUSAND SEVEN HUNDRED FORTY-FIVE AND NINE CENTS ONLY					
1. The above mentioned items are LAB GROWN DIAMONDS and/or jewelry that contains of Lab Grown Diamonds. These diamonds are grown by man. 2. The origin of these diamonds, as well as the process to grow these diamonds, are in a fully conflict free and ecologically friendly environment. 3. They are optically, chemically and physically identical to mined diamonds. 4. All subsequent future sales of these diamonds must be accompanied by appropriate disclosure as to their origin.		FOR PURE GROWN DIAMONDS INC.		FOR MRS. AYAKO LAWSON	

Figure 1: Scanned copy of the invoice received with NL702

CONFIDENTIAL
De Beers Technologies UK



PURE GROWN DIAMONDS INC.
28 WEST 44TH STREET,
SUITE 1204,
N.Y.C. NEW YORK
USA
Phone No: 646-652-8927
Fax No: 646-808-3449
EMail :
Web Site : <http://www.puregrowndiamonds.com/>

DATE: 27/Oct/2015
Packing List No.:

Bill To

MRS. AYAKO LAWSON
2 ASTOR CLOSE
MAIDENHEAD, SL61XQ
UK
Tel : 441628298790
Fax :
EMail :

Ship To

MRS. AYAKO LAWSON
2 ASTOR CLOSE
MAIDENHEAD, SL61XQ
U.K.
Tel : 441628298790
Fax :
EMail :


PACKING LIST OF LABORATORY GROWN DIAMONDS

SNO.	DETAILS	SHAPE	SIZE	COLOR	CLARITY	PCS	CTG	RATE	VALUE
1	LG10226420	ROUND	0.30-0.39	E	VSI	1	0.380	1,375.50	522.69
2	LG10172714	PRINCES	0.40-0.49	E	VSI	1	0.460	2,440.00	1,122.40
						2	0.840		1,645.09
<p>1. The above mentioned items are LAB GROWN DIAMONDS and/or jewelry that contains of Lab Grown Diamonds. These diamonds are grown by man.</p> <p>2. The origin of these diamonds, as well as the process to grow these diamonds, are in a fully conflict free and ecologically friendly environment.</p> <p>3. They are optically, chemically and physically identical to mined diamonds.</p> <p>4. All subsequent future sales of these diamonds must be accompanied by appropriate disclosure as to their origin.</p>									
						FOR PURE GROWN DIAMONDS INC.	FOR MRS. AYAKO LAWSON		

Page 2 of 2

Figure 2: Scanned copy of the packing list received with NL702. LG10226420 is the IGI report number for NL702.

CONFIDENTIAL
De Beers Technologies UK



**INTERNATIONAL
GEMOLOGICAL
INSTITUTE**

Expertise issued by I.G.I.
551 Fifth Avenue, New York, NY 10176
Tel: (212) 753-7100 Fax: (212) 758-7759
www.igiworldwide.com

**LABORATORY GROWN
DIAMOND REPORT**

DATE: 6/18/2015 **REPORT NUMBER:** LG10226420

DESCRIPTION: LABORATORY GROWN DIAMOND

SHAPE AND CUTTING STYLE: ROUND BRILLIANT

MEASUREMENTS: 4.61 - 4.63 x 2.87 MM.

GRADING RESULT:

Carat Weight: 0.38 CT(S)

Color Grade: K-FAINT COLOR

Clarity Grade: VS1

Cut Grade: IDEAL

PROPORTIONS:

Depth: 62.0%

Table: 57.5%

Crown Height % - Ang ° 15.0% - 35.3°

Pavilion Depth % - Ang ° 43.0% - 40.9°

Girdle: MEDIUM TO SLIGHTLY THICK

Culet: NONE

FINISH:

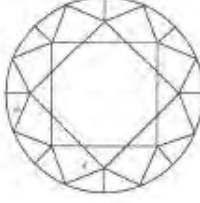
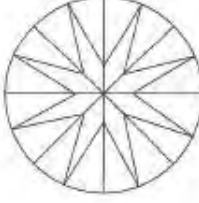
Polish: EXCELLENT

Symmetry: VERY GOOD

FLUORESCENCE: NONE

COMMENTS: Laserscribe ® "LAB GROWN LG10226420". The laboratory grown diamond described above is classified as Type IIA.

Red symbols denote internal characteristics (inclusions). Green or black symbols denote external characteristics (blemishes). Diagram in an approximate representation of this stone, and symbols shown indicate type, position, and approximate size of clarity characteristics. All clarity characteristics may not be shown. Details of finish are not shown.




PHOTO ENLARGED

COLOR GRADING SCALE	CL COLORLESS D - F	NC NEAR COLORLESS G - J	FT FAINT K - M	VLT VERY LIGHT N - R	LT LIGHT S - Z
CLARITY (10X) GRADING SCALE	FL FLAWLESS	VVS VERY VERY SLIGHTLY INCLUDED	VS VERY SLIGHTLY INCLUDED	SI SLIGHTLY INCLUDED	I INCLUDED
	IF INTERNALLY FLAWLESS				

The laboratory grown diamond described in this Report ("Report") has been graded, tested, analyzed, examined and/or inscribed by International Gemological Institute (I.G.I.). A laboratory grown diamond is one that has the same chemical, physical and optical properties as mined diamond, with the exception of being grown by man. I.G.I. employs and utilizes those techniques and equipment currently available to I.G.I., including, without limitation, 10X magnification, corrected triplet loupe and binocular microscope, master color comparison system, non-contact optical measuring device, and such other instruments and/or processes as deemed appropriate by I.G.I. This Report includes advanced security features. *The gem and/or article of jewelry will be micro-photographed resulting in an enlarged photograph, as to allow detail to be easily observed. This photograph is representative of the gemstone or jewelry inspected. IT MAY NOT BE YOUR INDIVIDUAL ARTICLE. A duly accredited gemologist or jeweler can advise you with respect to the importance of and interrelationship between cut, color, clarity and carat weight.

THIS REPORT IS NEITHER A GUARANTEE, VALUATION NOR APPRAISAL OF THE LABORATORY GROWN DIAMOND DESCRIBED HEREIN.

© 2007 International Gemological Institute See Terms and Limitation on Reverse.

Figure 3: A scanned copy of the IGI report for NL702 (report number LG10226420)

CONFIDENTIAL

De Beers Technologies UK

NL702

Colour grade *,**	K
Clarity grade *,**	VS1
Cut grade **	Ideal
Weight (ct) *,**	0.38
IGI report no. *,**	LG10226420
Grading report date**	18 June 2015

Table 1: Details of the NL702

* indicates on packing list. ** indicates on the IGI grading report.

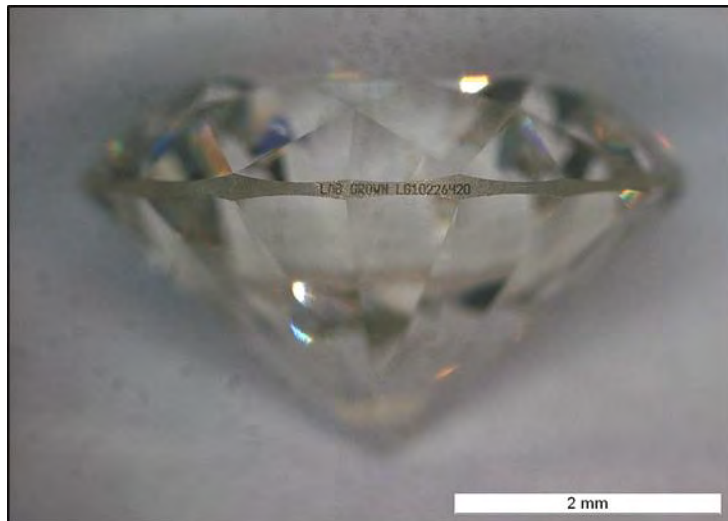
3. Optical Microscopy

Figure 4: An image of NL702 showing the laser inscription on the girdle: Lab Grown LG10226420

4. DiamondSure and DiamondPLUS testing

NL702 was tested using DiamondSure and DiamondPLUS. The results are given below in Table 2 and indicate that the stone is a CVD synthetic diamond.

Gemstone	DiamondSure results	DiamondPLUS results
NL702	'Refer for further tests (Type II)'	'Refer (CVD synthetic?)'

Table 2: DiamondSure and DiamondPLUS results for NL702

CONFIDENTIAL

De Beers Technologies UK

5. DiamondView and Photoluminescence Spectroscopy

Surface fluorescence images and phosphorescence images of NL702 were recorded using DiamondView. Figure 5 shows one of the images recorded. The girdle inscription is clearly visible. The dominant fluorescence colour is green and striations that are typically of CVD synthetic diamond are visible. Figure 6 shows a phosphorescence image of the sample. The combination of green fluorescence and blue phosphorescence has been observed in many Gemesis samples that we have previously studied and is often seen for nitrogen doped CVD synthetic diamond that has been heat treated (annealed) to improve its colour.

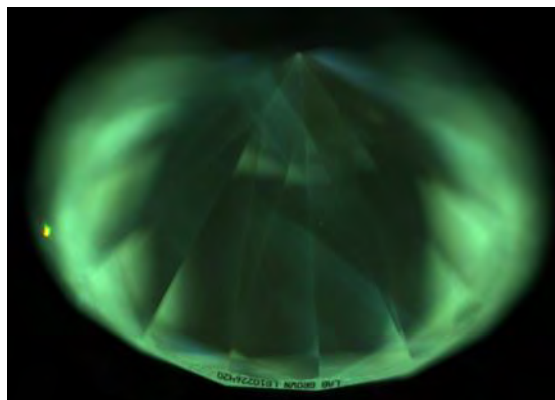


Figure 5: Fluorescence image of NL702 recorded using a DiamondView

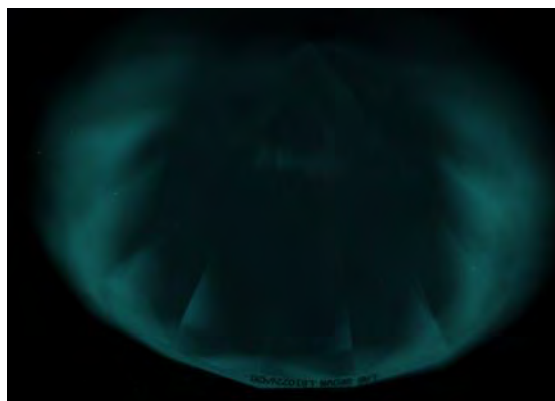


Figure 6: Phosphorescence image of NL702 recorded using a DiamondView

Photoluminescence spectra of NL702 were recorded at 77 K with different laser excitations. With 514 nm excitation, a line at 737 nm was readily detected and nitrogen vacancy defects with zero phonon lines at 575 nm and 637 nm were also detected with Raman normalised intensities of 0.22 and 0.23 respectively. With excitation at 458 nm, a line at 503 nm with a Raman normalised intensity of 0.44 indicated the presence of H3 defects (comprising two nitrogen atoms and a vacancy). The detection of H3 defects in material with such a low overall nitrogen content is supporting evidence that the sample has been annealed (heat treated) after growth.

CONFIDENTIAL

De Beers Technologies UK

6. Processing into a parallel sided plate

NL702 was processed to produce a parallel sided plate for birefringence analysis. Figure 7 shows a series of images of the stone recorded at different stages of the processing into a parallel-side plate with thickness 0.71 mm and weight 0.18 ct. The stone was first laser sawn across its pavilion and the resulting surface and the table were then polished back, leaving the girdle in the centre of the finished plate. After processing, the very shallow laser inscription was just visible (see Figure 8).



Figure 7: Images of NL702 recorded at different stages of processing into a parallel-side plate with thickness 0.71 mm and weight 0.18 ct.

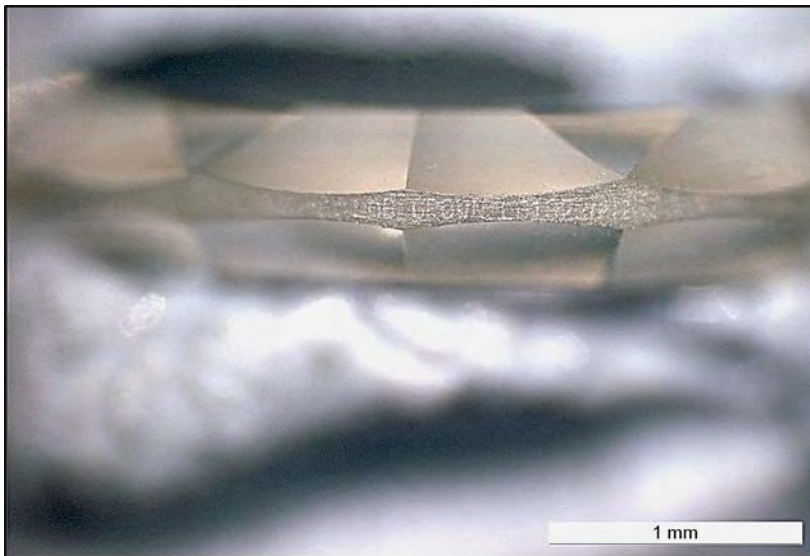


Figure 8: After processing, the very shallow laser inscription was just visible.

CONFIDENTIAL

De Beers Technologies UK

7. NL702: Metripol Analysis of Optical Quality

The parallel-sided plate (with a thickness of 0.71 mm, a diameter of 4.56 mm) produced from NL702 was imaged using a Metripol microscope at Warwick University using an illumination wavelength of 590 nm to give $\sin \delta$ values pixel-by-pixel. Nineteen overlapping images of the sample were collected using a 4x objective, which provides a 1360 x 1024 pixel image covering 1.581 x 1.191 mm area (approximate pixel size of 1.163 x 1.163 μm). For each sample the overlapping images were then stitched together to create an image of the entire area of the sample. The image stitching was completed using the free program 'ImageJ' with the 'stitching' plugin. This program allows the user to manually place individual image frames into position. The frame positions can then be computationally optimised and a stitched image / mosaic is generated along with a text file containing the optimized frame positions. De Beers Technologies UK have used a Matlab script, to stitch .ssf (data) files into an image using the optimized frame positions. A Matlab script has also been used to select and analyse appropriate rectangular, or circular regions of interest from the .ssf data image.

A $\sin \delta$ image and histogram for a selected region of sample NL702 are shown in Figure 9.

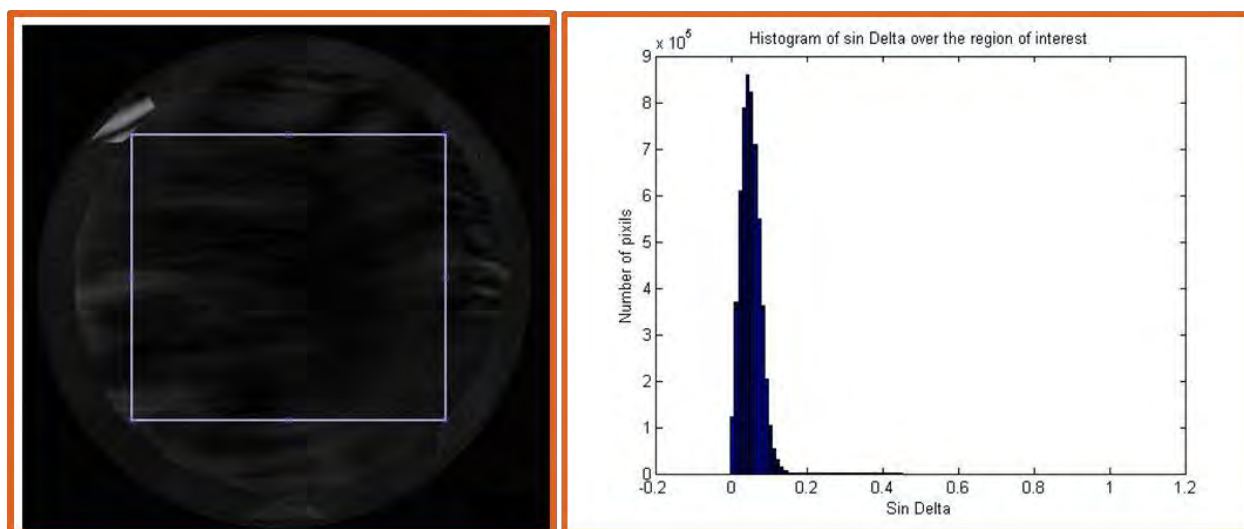


Figure 9: $\sin \delta$ Metripol image of the entire area of NL702 and a histogram of the $\sin \delta$ values for the region of the sample indicated by the white box in the Metripol image.

Two square regions of the sample image were selected as illustrated in Figure 10. These areas had dimensions of 1.3 mm x 1.3 mm and 2.5 mm x 2.5 mm.

CONFIDENTIAL
De Beers Technologies UK

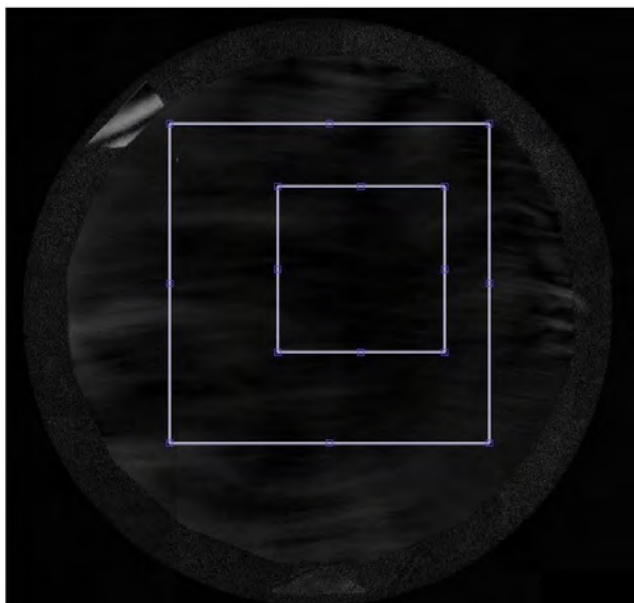


Figure 10: A Sin δ Metripol image of NL702 showing square regions of the sample selected for analysis of the distribution of sin δ values. The dimensions of these regions were 1.3 mm x 1.3 mm and 2.5 mm x 2.5 mm.

For the two selected areas the maximum sin δ value was found (sin δ_{\max}), and hence δ_{\max} was calculated. Using the equation $\Delta n_{\max} = \delta_{\max} \lambda_{\text{meas}} / 2\pi L$, Δn_{\max} was then deduced. The results for NL702 are given in Table 3. This table also includes sin δ_{\max} and Δn_{\max} values after selection of the pixels with the 99% and 98% lowest values. Consideration of possible sources of measurement error indicates that the measured sin δ_{\max} values are within 0.02 of the true values and the Δn_{\max} values are within 3×10^{-6} of the true values.

Dimension of selected area (mm)	Sin δ_{\max} (for 100% of the analysed area)	Δn_{\max} (for 100% of the analysed area)	Sin δ_{\max} (for 99% of the analysed area)	Δn_{\max} (for 99% of the analysed area)	Sin δ_{\max} (for 98% of the analysed area)	Δn_{\max} (for 98% of the analysed area)
1.3 x 1.3	0.141	1.87×10^{-5}	0.085	1.13×10^{-5}	0.080	1.06×10^{-5}
2.5 x 2.5	0.447	6.13×10^{-5}	0.106	1.40×10^{-5}	0.101	1.34×10^{-5}

Table 3: sin δ_{\max} and Δn_{\max} values for selected regions the NL702 plate shown in figure 10. Values are given for 100% of the analysed area and for 99% and 98% of the analysed area.

8. Electron Paramagnetic Resonance (EPR)

The N_s^0 concentration for the parallel-sided plate was measured at Warwick University using rapid passage EPR and found to be 460(40) ppb ($8.1 \times 10^{16} \text{ cm}^{-3}$).

CONFIDENTIAL

De Beers Technologies UK

9. Fourier Transform Infrared (FTIR) Spectroscopy

An FTIR spectrum was recorded for the round brilliant at 0.5 cm^{-1} resolution. The integrated absorption coefficient for the line in the spectrum at 1344 cm^{-1} indicated an N_s^0 concentration of 0.5 ppm, in good agreement with the concentration deduced from EPR. From the strength of the line at 1331 cm^{-1} the upper limited for the N_s^+ concentration was found to be 0.1 ppm. No line was detected at 3123 cm^{-1} and therefore the concentration of NVH^0 was below the detection limit. The spectrum did however contain a weak line at 1341 cm^{-1} that we have previously only observed for CVD synthetic diamond that has been exposed to heat treatment that has removed or reduced brown colour.

10. Measurement of Near-Infrared Absorption Coefficient

The parallel-side plate produced from NL702 was sent to Laser Zentrum Hannover for laser calorimetry measurements of absorbance at 1064 nm (1.064 μm). The method followed ISO 11551:2003 and gave an absorbance result for the plate of 3131 ppm (3131×10^{-6}). From this result and the thickness of the plate (0.71 mm) an absorption coefficient at 1064 nm of 0.044(5) cm^{-1} was deduced. More details of the measurement are given in an LZH optics characterisation measurement report (#Report-14846.pdf) dated 30 March 2016.

CONFIDENTIAL
De Beers Technologies UK

TECHNICAL REPORT

Summary of Evidence that NL702 had been Heat Treated (Annealed) after Growth

1. Introduction

NL702, a round brilliant polished gemstone of 0.38 ct weight, was received from Ayako Lawson at De Beers Technologies UK in late 2015. After preliminary characterization it was processed to produce a parallel-side plate for birefringence investigation and for measurement of the NIR absorbance. This short report presents key findings of the characterization that provide evidence that the material had been annealed after growth.

2. Absorption spectroscopy

The EPR spectrum of the parallel sided plate produced from NL702 was measured at Warwick University and indicated that the concentration of neutral single nitrogen was 460(40) ppb.

The FTIR absorption spectrum shows very little extrinsic absorption small absorption peaks at 1332, 1344 and 1341 cm^{-1} . The integrated absorption coefficient of the feature at 1344 indicated a single substitutional nitrogen concentration of approximately 0.5 ppm, consistent with the EPR measurement. The integrated absorption coefficient for the feature at 1332 cm^{-1} indicated a maximum concentration of positively charged single nitrogen of approximately 0.1 ppm. In our experience the feature at 1341 cm^{-1} has only been observed for samples that have been annealed at high temperature after growth. No absorption feature was observed at 3123 cm^{-1} . As-grown nitrogen containing CVD synthetic diamond tends to show an absorption feature at 3123 cm^{-1} which removed by post-growth annealing at high temperature.

These results indicate that nitrogen is an impurity in NL702 and together they indicate that the sample was annealed after growth.

3. Photoluminescence spectroscopy

Photoluminescence spectra from NL702 were recorded at liquid nitrogen temperature (77 K) for various excitation wavelengths and some of the key photoluminescence lines observed are listed in table 1.

Excitation wavelength (nm)	PL features (nm) shown by NL702	Notes
325	N3: 415.1 nm, 427.7 nm, H3: 503.1 nm	Lines not seen in as-grown material
458	H3: 503 nm	$I(\text{H3})/I(\text{Raman}) = 0.44$
488	H3: 503 nm	H3 consistent with heat treatment
514	540.5 nm, NV^0 : 575 nm, NV^- : 637 nm, 737 nm	$I(\text{NV}^0) \text{ ZPL and } I(\text{NV}^-) \text{ ZPL} \approx 0.22\text{-}0.23 \times \text{Raman}$, Observation of 540.5 nm PL suggests annealing. $I(737)/I(\text{Raman}) = 0.007$

Table 1 Key zero phonon lines (ZPL) present in photoluminescence spectra of NL702 recorded at liquid nitrogen temperature with various different laser excitation wavelengths

CONFIDENTIAL
De Beers Technologies UK

Table 2 lists Raman normalized intensities for some zero phonon lines present in photoluminescence spectra of NL702, along with other intensity ratios derived from the measurements.

$I(\text{NV}^0 \text{ ZPL})/I(\text{Raman})$	0.22
$I(\text{NV}^- \text{ ZPL})/I(\text{Raman})$	0.23
$I(\text{NV}^- \text{ ZPL})/I(\text{NV}^0 \text{ ZPL})$	0.45
$I(\text{H3 ZPL})/I(\text{Raman})$ (458 nm excitation)	0.44
$I(\text{H3 ZPL})/I(\text{NV}_{\text{total}})$ where $I(\text{NV}_{\text{total}}) = I(\text{NV}^0 \text{ ZPL}) + I(\text{NV}^- \text{ ZPL})$	0.982

Table 2 Raman normalized zero phonon line (ZPL) intensities for various defect centres

Previous investigations of the effect of heat treatment on the properties of CVD synthetic diamond samples produced by Element Six for research purposes have indicated that the ratio of the intensity of the H3 zero phonon line to the summed intensities of the NV^0 and NV^- zero phonon lines is changed by post-growth heat treatment (sometimes called annealing) in the way shown in figure 1. It can be seen from this figure that there is a marked increase of the ratio as a function of annealing temperature and measurements on a range of different samples have indicated that the ratio can be used as a reliable indicator of whether or not a sample has been post-growth heat treated and the approximate temperature of such heat treatment. The value of the ratio measured for NL702 is shown by the blue line in figure 1 and indicates an equivalent four hour heat treatment temperature of between 1900 and 2300°C.

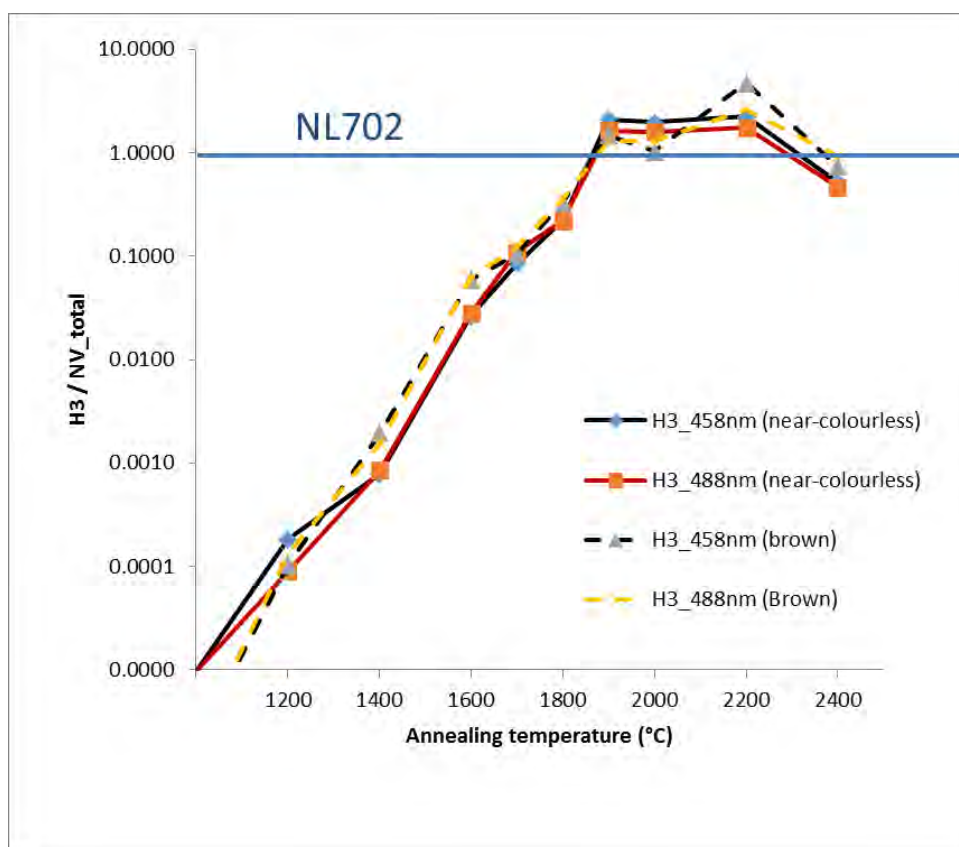


Figure 1 The ratio of H3/NV fluorescence intensities as a function of annealing temperature for brown and near-colourless CVD synthetic diamond. Results are shown for two different excitation wavelengths: 458 nm and 488 nm. The ratio for NL702 is shown by the horizontal line and suggests an equivalent four hour heat treatment temperature in the approximate range 1900-2300°C.

CONFIDENTIAL
De Beers Technologies UK

4. DiamondView images

In DiamondView samples are illuminated with above bandgap radiation and images are then captured of the resulting surface fluorescence and phosphorescence. The instrument is used by the diamond trade (eg grading laboratories) for identification of natural and synthetic diamond. It is also a useful sample characterization tool for research into the effects of heat treatment of synthetic diamond and in the course of such research carried out at De Beers Technologies we have captured images of CVD synthetic diamond samples of various kinds in their as-grown form and after heat treatments at different temperatures. **Figure 2** shows a series of DiamondView images of CVD synthetic diamond samples annealed at successively higher temperatures.

	<i>Microscopy Initial</i>	<i>DiamondView Initial</i>	<i>Microscopy T1</i>	<i>DiamondView T1</i>	<i>DiamondView (phosph.) T1</i>
1200°C / 4h DTC					none
1400°C / 4h DTC					none
1600°C / 4h IoM					none
1700°C / 4h IoM					
1800°C / 4h IoM					
1900°C / 4h IoM					
2000°C / 4h IoM					
2200°C / 4h IoM					
2400°C / 4h IoM					

Figure 2 Microscopy and DiamondView images of CVD synthetic diamond samples heat treated at different temperatures. The 1200 and 1400°C treatments were carried out at atmospheric pressure but the other heat treatments were carried out with diamond stabilizing pressure.

It can be seen from figure 2 that as the temperature of the heat treatment applied to brown CVD synthetic diamond is increased

- i) the brown colour is removed,
- ii) the dominant fluorescence colour changes from orange to green and then to blue
- iii) green phosphorescence appears and then, at higher temperatures, the dominant colour of the phosphorescence changes from green to blue.

CONFIDENTIAL
De Beers Technologies UK

DiamondView images of NL702 are shown below in figure 3 (fluorescence) and figure 4 (phosphorescence). The fluorescence images show striations that indicate that can be used to identify that the material is CVD synthetic diamond. The dominant colour of the fluorescence and together with the observation of blue phosphorescence is not consistent with what is observed for as-grown nitrogen-doped CVD diamond but is consistent with what would be expected for nitrogen-doped CVD synthetic diamond material that has been heat treated at high temperatures as illustrated in figure 1. Matching of the fluorescence/phosphorescence colours suggests an equivalent four hour heat treatment temperature in the approximate range 2000-2200°C in agreement with the range indicated by the photoluminescence intensity ratio method outlined in section 3.

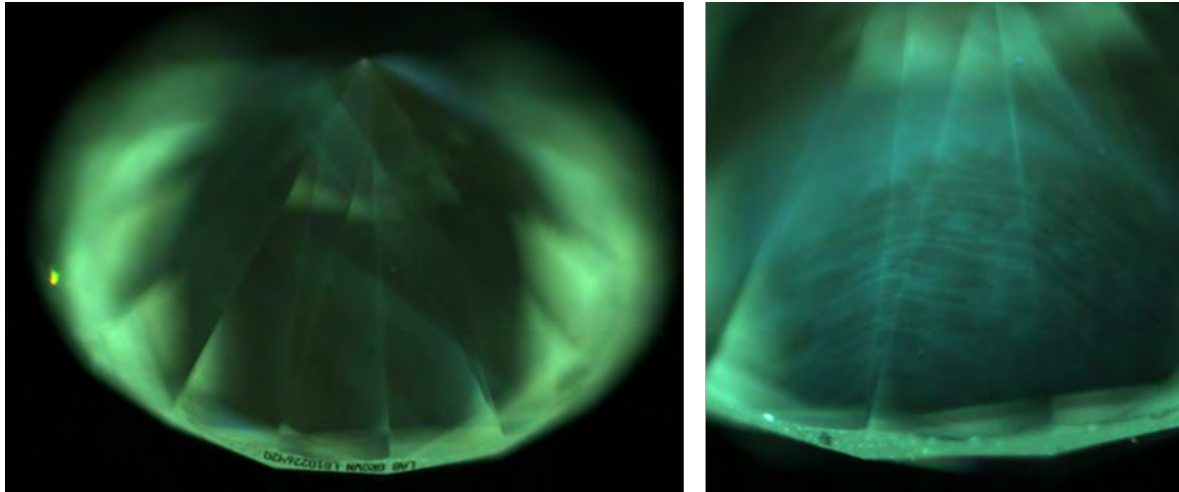


Figure 3 DiamondView fluorescence images of NL702

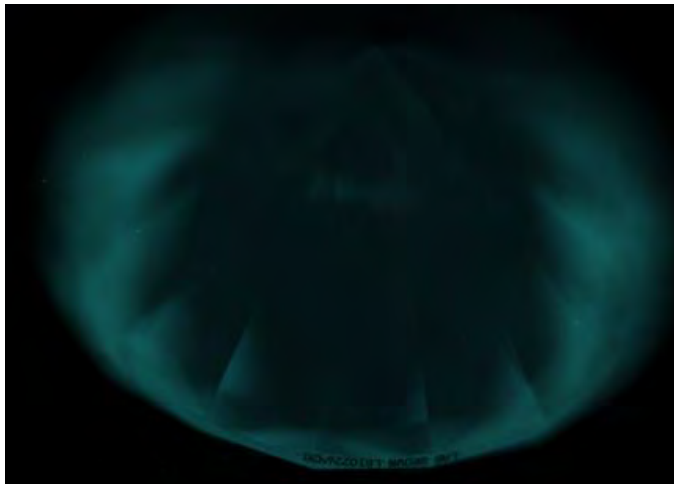


Figure 4 DiamondView phosphorescence images of NL702

CONFIDENTIAL
De Beers Technologies UK

5. Summary of characteristics of optical grade CVD synthetic diamond plates sold by Microwave Enterprises and changes observed after heat treatment

As detailed in this short report, characterization of the CVD synthetic diamond sample NL702 bought from Pure Grown Diamonds has strongly indicated that it has been heat treated after growth. We have, however, also had the opportunity to study ten CVD synthetic diamond plates (NL625-1 to -10) sold by Microwave Enterprises for optical applications and stated by them to have been produced by Ila Technologies and we found these samples to have characteristics consistent with their not having been heat treated after growth. This gave us the opportunity to investigate the effect of heat treatment on material grown by Ila Technologies. NL625-01 was heat treated at 2100°C for 30 minutes and NL625-06 was heat treated at 2400°C for 30 minutes. The effect on the fluorescence and phosphorescence characteristics is illustrated in figure 5.

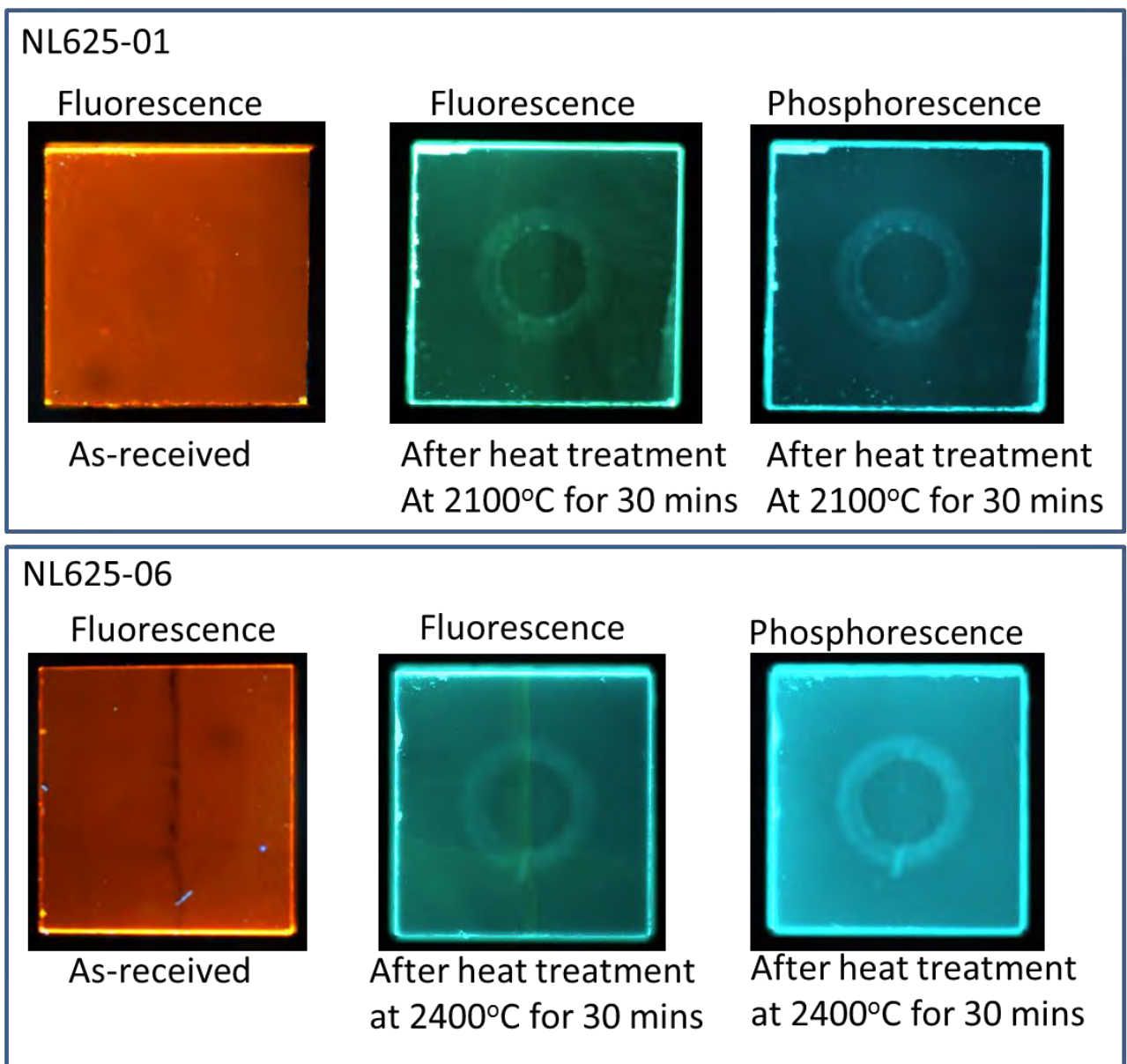


Figure 5 DiamondView images of NL625-01 and NL615-06 before and after heat treatment. Neither sample showed phosphorescence in their as-received form.

CONFIDENTIAL**De Beers Technologies UK**

Photoluminescence spectra of all ten of the samples NL625-01 to -10 in their as-received form showed strong 575 and 637 nm lines from NV defects (with 514 nm excitation) and no H3 luminescence (with either 488 nm or 458 nm excitation). Although they were stated to be for optical applications they were brown and their UV/visible absorption spectra showed the gradual rise in absorption towards shorter wavelengths that is typical of as-grown nitrogen-doped CVD synthetic diamond samples. EPR spectroscopy indicated that they contained between 0.063 and 0.225 ppm of single substitutional nitrogen (NL625-01: 0.225 ppm and NL625-06: 0.100 ppm).

Detailed photoluminescence spectroscopy of the heat treated samples has not been carried out but comparison of figures 2 and 5 shows that the heat treated samples have DiamondView fluorescence and phosphorescence characteristics very similar to those of samples that we had previously grown and heat treated in the same temperature range as part of our experimental programme. Comparison of figure 5 with figures 3 and 4 shows that the DiamondView fluorescence and phosphorescence characteristics of NL702 are very similar to those of the two NL625 samples that we heat treated at high temperatures.

6. Discussion

CVD diamond grown with nitrogen present in the growth environment tends to be brown and to contain nitrogen in forms such as single substitutional nitrogen, nitrogen-vacancy (NV) centres and nitrogen vacancy hydrogen (NVH) centres. Single substitutional nitrogen gives rise to the absorption feature at 270 nm and the P1 lines in the EPR spectrum. NV defects give rise to 575 and 637 nm luminescence features observed when a sample is excited at 514 nm, for example. NVH defects are responsible for the 3123 cm^{-1} line in the FTIR spectrum and a band at about 520 nm in the visible absorption spectrum.

When such CVD diamond is heat treated at high temperatures NVH defects are dissociated and as a result the 3123 cm^{-1} line and the 520 nm band are no longer observed. NV centres dissociate but low concentrations of these defects remain because of a dynamic equilibrium between their formation and loss. As a result the NV fluorescence intensity is reduced but weaker NV luminescence is still observable for nitrogen containing heat treated CVD diamond. Single substitutional nitrogen remains after heat treatment and in addition some nitrogen is found in an aggregated form known as the H3 centre. This is made up of two nitrogen atoms with a neighbouring missing carbon atom (vacancy). Our research has shown that as nitrogen containing CVD diamond is heat treated at successively higher temperatures, for given excitation conditions the ratio of the H3 luminescence intensity to the NV luminescence intensity increases in a way that enables the approximate temperature of heat treatment to be deduced from measurement of this ratio. For as-grown samples the H3 fluorescence is generally absent and NV fluorescence is strong.

The effect of heat treatment on defect centres responsible for fluorescence (NV centres and H3) also helps to explain the changes in the colours of the fluorescence observed in DiamondView images when samples are heat treated. Heat treatment reduces the concentration of NV centres that show orange/red fluorescence and increases the intensity of H3 centres that show green fluorescence. Additional blue fluorescence is introduced when samples are annealed at the highest temperatures.

For NL702 the results of absorption spectroscopy are consistent with heat treatment because of the absence of absorption from defects that are typically grown into CVD diamond but would be

CONFIDENTIAL

De Beers Technologies UK

removed by heat treatment and the presence of the 1341 cm^{-1} line that we have only observed for annealed CVD synthetic diamond. The results of photoluminescence spectroscopy and DiamondView imaging provide strong evidence that NL702 has been heat treated and indicate an equivalent four hour heat treatment in the approximate range $1900\text{-}2300^{\circ}\text{C}$.

Samples received from Microwave Enterprises had characteristics consistent with their being in their as-grown form. When two of these samples were heat treated at 2100°C and 2400°C for 30 minutes, after the heat treatment their DiamondView characteristics were very similar to those of NL702. This indicates that when material believed to have been produced by Ila Technologies is heat treated at high temperatures its DiamondView characteristics change dramatically from orange fluorescence and no phosphorescence to blue/green fluorescence and blue phosphorescence. NL702 showed blue/green fluorescence and blue phosphorescence and this is therefore additional evidence that it had been heat treated at high temperatures.

Philip Martineau

Senior Manager Physics at De Beers Technologies UK

5 October 2016

CONFIDENTIAL

De Beers Technology UK

TECHNICAL NOTE**Title: Summary of Evidence that NL702 was Coloured Prior to Annealing****Author: Philip Martineau****Date: 5 October 2016****1. Introduction**

NL702, a 0.38 ct synthetic diamond round brilliant bought from Pure Grown Diamonds, was delivered to De Beers Technologies UK on 2 November 2015. It was characterized before being processed to produce a parallel-side plate for birefringence investigation. Findings supporting the conclusion that NL702 is a CVD synthetic diamond are given in a report **“Analysis of Pure Grown Diamonds Gemstone NL702”**. Key findings that provide evidence that the material had been annealed after growth are summarized in a short report **“Summary of Evidence that NL702 had been Heat Treated (Annealed) after Growth”**. Here evidence that the sample was coloured prior to annealing is summarized.

2. Simple argument relating to the fact that the sample has been annealed

NL702 was given a K colour grade by IGI. This is within the range of colour grades covering stones that are categorized as near-colourless. It is now well known that it is possible to change the colour of brown as-grown CVD synthetic diamond to more desirable colours by heat treatment (annealing) but that such annealing has no significant effect for CVD synthetic diamond material that is already colourless. The evidence that NL702 had been annealed is very strong and the author cannot think of any other credible reason why such annealing should have been carried out in this case other than to improve the colour of the material. The fact that it was near-colourless after annealing therefore points to its having been coloured before annealing.

3. Evidence from Element Six research

In our research we have been growing and characterizing CVD synthetic diamond for many years and the only samples that we have generated in that research that have the properties and defect content of NL702 (eg photoluminescence and phosphorescence properties) are those that were brown in their as-grown form and that we have annealed in a way that makes them more colourless. The infrared absorption spectrum of NL702 contains a line at 1341 cm^{-1} that we have never observed except in samples that have been annealed in a process that reduced the absorption responsible for their brown colour. We have never produced near-colourless CVD synthetic diamond material with the observed properties by annealing a sample that was already near-colourless.

4. Evidence from annealing of brown material bought from Microwave Enterprises

We have studied ten samples (given label NL625-01 to NL625-10) bought from Microwave Enterprises. The quotation indicated that the samples were produced by Ila Technologies Pte Ltd Singapore and the box in which the samples arrived was labelled with the Ila Technologies logo. These samples showed no evidence of having been annealed, were brown and had absorption

CONFIDENTIAL

De Beers Technology UK

spectra very similar to those of brown CVD synthetic diamond samples that Element Six have grown with nitrogen to the growth process. We have annealed some of these NL625 samples to investigate the effect of annealing on this brown material. Optical absorption spectroscopy has been carried out before and after annealing for these samples and the optical absorption changed in the way that we expected from our previous experience and was consistent with a change of colour from brown to colourless. In addition, after annealing, the samples had the same photoluminescence and phosphorescence characteristics as the NL702. (See the report: **“Summary of Evidence that NL702 had been Heat Treated (Annealed) after Growth”**.) This shows that annealing brown CVD synthetic diamond grown by Ila Technologies leaves it with the properties observed for NL702. It is therefore supporting evidence that NL702 was coloured (brown) before it was annealed.

Philip Martineau

Senior Manager Physics at De Beers Technologies UK

5 October 2016



INTERNATIONAL GEMOLOGICAL INSTITUTE

Expertise issued by I.G.I.

551 Fifth Avenue, New York, NY 10176
Tel: (212) 753-7100 Fax: (212) 758-7759
www.igiworldwide.com

LABORATORY GROWN DIAMOND REPORT

Red symbols denote internal characteristics (inclusions). Green or black symbols denote external characteristics (blemishes). Diagram in an approximate representation of this stone, and symbols shown indicate type, position, and approximate size of clarity characteristics. All clarity characteristics may not be shown. Details of finish are not shown.

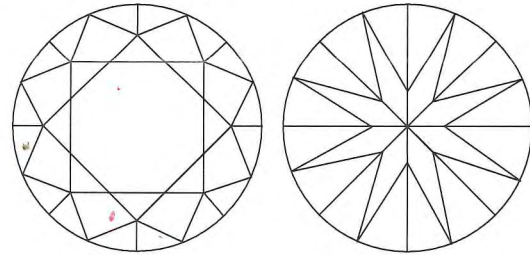


PHOTO ENLARGED

DATE: 6/18/2015

REPORT NUMBER: LG10226420

DESCRIPTION:

LABORATORY GROWN DIAMOND

SHAPE AND CUTTING STYLE:

ROUND BRILLIANT

MEASUREMENTS:

4.61 - 4.63 x 2.87 MM.

GRADING RESULT:

Carat Weight: 0.38 CT(S)
Color Grade: K-FAINT COLOR
Clarity Grade: VS 1
Cut Grade: IDEAL

PROPORTIONS:

Depth: 62.0%
Table: 57.5%
Crown Height % - Ang °: 15.0% - 35.5°
Pavilion Depth % - Ang °: 43.0% - 40.9°
Girdle: MEDIUM TO SLIGHTLY THICK
Culet: NONE

FINISH:

Polish: EXCELLENT
Symmetry: VERY GOOD

FLUORESCENCE:

NONE

COMMENTS: Laserscribe ®: "LAB GROWN LG10226420". The laboratory grown diamond described above is classified as Type IIA.

**COLOR
GRADING
SCALE**

CL	NC	FT	VLT	LT
COLORLESS D - F	NEAR COLORLESS G - J	FAINT K - M	VERY LIGHT N - R	LIGHT S - Z

**CLARITY (10X)
GRADING
SCALE**

FL	IF	VVS	VS	SI	I
FLAWLESS	INTERNAL FLAWLESS	VERY VERY SLIGHTLY INCLUDED	VERY SLIGHTLY INCLUDED	SLIGHTLY INCLUDED	INCLUDED

The laboratory grown diamond described in this Report ("Report") has been graded, tested, analyzed, examined and/or inscribed by International Gemological Institute (I.G.I.). A laboratory grown diamond is one that has the same chemical, physical and optical properties as mined diamond, with the exception of being grown by man. I.G.I. employs and utilizes those techniques and equipment currently available to I.G.I., including, without limitation, 10X magnification, corrected triplet loupe and binocular microscope, master color comparison system, non-contact-optical measuring device, and such other instruments and/or processes as deemed appropriate by I.G.I. This Report includes advanced security features. *The gem and/or article of jewelry will be micro-photographed resulting in an enlarged photograph, as to allow detail to be easily observed. This photograph is representative of the gemstone or jewelry inspected. IT MAY NOT BE YOUR INDIVIDUAL ARTICLE. A duly accredited gemologist or jeweler can advise you with respect to the importance of and interrelationship between cut, color, clarity and carat weight.

THIS REPORT IS NEITHER A GUARANTEE, VALUATION NOR APPRAISAL OF THE LABORATORY GROWN DIAMOND DESCRIBED HEREIN.

© 2007 International Gemological Institute

See Terms and Limitation on Reverse.



PURE GROWN DIAMONDS INC.
 28 WEST 44TH STREET,
 SUITE 1204,
 N.Y.C, NEW YORK
 USA
 Phone No: 646-652-8927
 Fax No: 646-808-3449
 Email :
 Web Site : <http://www.puregrowndiamonds.com/>

Invoice

Invoice No : SA-1510-00178
 DATE : 27/Oct/2015
 Remark# :
 Payment Terms : 0
 Packing List No :

Buyer	Consignee
MRS. AYAKO LAWSON 2 ASTOR CLOSE MAIDENHEAD, SI61XQ U.K. Tel : 441628298790 Fax : EMail :	MRS. AYAKO LAWSON 2 ASTOR CLOSE MAIDENHEAD, SI61XQ U.K. Tel : 441628298790 Fax : EMail :

SNo	Description	Pcs	CTS	RATE US \$ / CTS	AMOUNT US \$
1	LAB GROWN CUT & POLISHED DIAMONDS	2	0.840	1,958.44	1,645.09
	DISCOUNT AMT				(0.00)
	SHIPPING AMT				100.00
	OTHER CHARGES AMT				0.00
	TAX AMT				0.00
	TOTAL	2	0.840		1,745.09

Amount In Words :- US DOLLAR - ONE THOUSAND SEVEN HUNDRED FORTY-FIVE AND NINE CENTS ONLY

1.The above mentioned items are LAB GROWN DIAMONDS and/or jewelry that contains of Lab Grown Diamonds.These diamonds are grown by man. 2. The origin of these diamonds, as well as the process to grow these diamonds,are in a fully conflict free and ecologically friendly environment. 3. They are optically, chemically and physically identical to mined diamonds. 4. All subsequent future sales of these diamonds must be accompanied by appropriate disclosure as to their origin.	FOR PURE GROWN DIAMONDS INC.	FOR MRS. AYAKO LAWSON
--	--	-------------------------------------



PURE GROWN DIAMONDS™
CERTIFIED & SUSTAINABLE

PURE GROWN DIAMONDS INC.

28 WEST 44TH STREET,
SUITE 1204,
N.Y.C, NEW YORK

USA

Phone No: 646-652-8927

Fax No: 646-808-3449

E-Mail :

Web Site : <http://www.puregrowndiamonds.com/>

DATE:

27/Oct/2015

Packing List No. :

Bill To

MRS. AYAKO LAWSON

2 ASTOR CLOSE

MAIDENHEAD, SI61XQ

U.K.

Tel : 441628298790

Fax :

E-Mail :

Ship To

MRS. AYAKO LAWSON

2 ASTOR CLOSE

MAIDENHEAD, SI61XQ

U.K.

Tel : 441628298790

Fax :

E-Mail :

PACKING LIST OF LABORATORY GROWN DIAMONDS

SNO.	DETAILS	SHAPE	SIZE	COLOR	CLARITY	PCS	CTS	RATE	VALUE
1	LG10226420	ROUND	0.30-0.39	K	VS1	1	0.380	1,375.50	522.69
2	LG10172714	PRINCESS	0.40-0.49	E	VS1	1	0.460	2,440.00	1,122.40
						2	0.840		1,645.09

1.The above mentioned items are **LAB GROWN DIAMONDS** and/or jewelry that contains of Lab Grown Diamonds.These diamonds are grown by man.

2. The origin of these diamonds, as well as the process to grow these diamonds,are in a fully conflict free and ecologically friendly environment.

3. They are optically, chemically and physically identical to mined diamonds.

4. All subsequent future sales of these diamonds must be accompanied by appropriate disclosure as to their origin.

FOR

PURE GROWN DIAMONDS INC.

FOR

MRS. AYAKO LAWSON

COMMERCIAL INVOICE

SHIPPED FROM: PGD INC D/B/A/ GE MESIS INC Tax ID/VAT No: 46-2673619 Contact Name: * Telephone No: 646 652 8924 Email: tracking@puregrowndiamonds.com Company Name/Address: PGD INC D/B/A/ GE MESIS INC 28 W. 44th ST. STE# 1204 NEW YORK, 10036				Date: 10/27/2015 Air Waybill No: 781594389996 Invoice No: PO 8712 Purchase Order No:			
Country: U.S.A Parties to Transaction <input type="checkbox"/> Related <input type="checkbox"/> Non-Related Payment Terms Incoterms: Reason for Export <input checked="" type="checkbox"/> Sold <input type="checkbox"/> Not Sold <input type="checkbox"/> Other				SOLD TO: <input checked="" type="checkbox"/> Same as SHIPPED TO: Company Name/Address: Country: UNITED KINGDOM			
SHIPPED TO: Mrs. Ayako Lawson Tax ID/VAT No: Contact Name: Mrs. Ayako Lawson Telephone No.: 044 162 8298790 Email: ayakolawson@gmail.com; Tracking@puregrowndiamonds.com Company Name/Address: Mrs. Ayako Lawson 2 Astor Close Maidenhead, United Kingdom, SL61XQ Country: UNITED KINGDOM				SOLD TO: <input checked="" type="checkbox"/> Same as SHIPPED TO: Company Name/Address: Country: UNITED KINGDOM			
No. of Line	No. of Units	Unit of Measure	Description of Goods (Including Harmonized Tariff No.)	Country of Origin	Value Per Unit	Total Value	
1	1	PCS	SYNTHETIC DIAMONDS (1 pcs, 7104901000)	CHINA		1,645.09	
Total No. of Packages : 1				SubTotal:		1,645.09	
Total Weight: 2 LBS.				Insurance:		MALCA - AMIT	
Special Instructions:				Freight:			
				Packing:		FB	
				Handling:			
				Other:			
Declaration Statement(s):				Invoice Total:		1,645.09	
PGD 28 W. 44th St., #1204 New York, NY 10036 T: 1 (646) 942-8315				Currency Code:		USD	
Signature/Title				Date		10/27/2015	



PURE GROWN DIAMONDS™

CERTIFIED & SUSTAINABLE

PURE GROWN DIAMONDS INC.28 WEST 44TH STREET,
SUITE 1204,
N.Y.C, NEW YORK

USA

Phone No: 646-652-8927

Fax No: 646-808-3449

EMail :

Web Site : <http://www.puregrowndiamonds.com/>

DATE:

27/Oct/2015

Packing List No. :

Bill To

MRS. AYAKO LAWSON

2 ASTOR CLOSE

MAIDENHEAD, SI61XQ

U.K.

Tel : 441628298790

Fax :

EMail :

Ship To

MRS. AYAKO LAWSON

2 ASTOR CLOSE

MAIDENHEAD, SI61XQ

U.K.

Tel : 441628298790

Fax :

EMail :

PACKING LIST OF LABORATORY GROWN DIAMONDS

SNO.	DETAILS	SHAPE	SIZE	COLOR	CLARITY	PCS	CTS	RATE	VALUE
1	LG10226420	ROUND	0.30-0.39	K	VS1	1	0.380	1,375.50	522.69
2	LG10172714	PRINCESS	0.40-0.49	E	VS1	1	0.460	2,440.00	1,122.40
						2	0.840		1,645.09

1.The above mentioned items are **LAB GROWN DIAMONDS** and/or jewelry that contains of Lab Grown Diamonds.These diamonds are grown by man.

2. The origin of these diamonds, as well as the process to grow these diamonds,are in a fully conflict free and ecologically friendly environment.

3. They are optically, chemically and physically identical to mined diamonds.

4. All subsequent future sales of these diamonds must be accompanied by appropriate disclosure as to their origin.

FOR

PURE GROWN DIAMONDS INC.

FOR

MRS. AYAKO LAWSON

From: 0017185256100
FABRICIO MACHIN

Origin ID: NYCA



153-66 Rockaway Blvd.

Jamaica, NY 11434
UNITED STATES



215M15010340v

SHIP TO: 0441628298790

BILL THIRD PARTY

Mrs. Ayako Lawson
Mrs. Ayako Lawson
2 Astor Close

Maidenhead United K, AL SL61XQ
GB

Ship Date: 27OCT15
ActWgt: 2.00 LB
CAD: 5238788/WSX12600

REF: PO 8712, INV PO 8712
DESC-1: 7104901000

DESC-2:

DESC-3:

DESC-4:

EEI: NO EEI 30.37(a)

COUNTRY MFG: CN

CARRIAGE VALUE: 500.00 USD

T/C: O 374080989

D/T: R *****

SIGN: FABRICIO MACHIN

EIN/VAT:

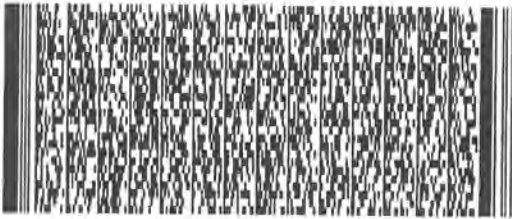
PKG TYPE: BOX

A2
INTL PRIORITY

TRK# 7815 9438 9996
0430

SL6 1XQ
-GB
STN

NY BEQA



These commodities, technology, or software were exported from the United States in accordance with the export administration regulations. Diversion contrary to United States law prohibited

The Warsaw Convention may apply and will govern and in most cases limit the liability of Federal Express for loss or delay of or damage to your shipment. Subject to the conditions of the contract.

CONSIGNEE COPY- PLEASE PLACE IN FRONT OF POUCH



539J3/401A/31D0

This is the Exhibit marked “SFW-41”

referred to in the Affidavit of

Susan Jane Fletcher Watts

affirmed in the United Kingdom

on this 27 day of March 2018

Before me

A handwritten signature in black ink, appearing to read 'Richard Griffiths', written over a horizontal line.

A NOTARY PUBLIC

RICHARD GARETH GRIFFITHS
Solicitor & Notary Public
Downend Lodge
Chieveley
ENGLAND RG20 8TN

Exhibit No.	Description	Page No.
41(a)	Delaware - 2013 Franchise Tax Report Gemesis Inc	275
41(b)	Delaware - 2014 Franchise Tax Report Gemesis Inc	276
41(c)	Ila Facebook References to PGD	277
41(d)	S'pore firm shines with lab-grown diamonds	291
41(e)	MetroWest Jewelry Store Selling Lab Grown Diamonds	294
41(f)	Ila Technologies Unveils World's Largest Diamond Greenhouse in Singapore	296
41(g)	World's largest diamond factory opens in Singapore	301

State of Delaware

Annual Franchise Tax Report

GEMESIS, INC.			TAX YR. 2013	
FILE NUMBER 5327015	INCORPORATION DATE 2013/04/30	RENEWAL/REUOCATION DATE		
PRINCIPAL PLACE OF BUSINESS 28 WEST 44TH STREET - SUITE 1204			PHONE NUMBER 646/652-8924	
NEW YORK NY 10036 United States				
REGISTERED AGENT NATIONAL CORPORATE RESEARCH, LTD.			AGENT NUMBER 9070044	
615 S DUPONT HWY DOVER DE 19901				
AUTHORIZED STOCK BEGIN DATE	END DATE	DESIGNATION/ STOCK CLASS	NO. OF SHARES	PAR VALUE/ SHARE
2013/04/30		COMMON	1,000	.001000
OFFICER	NAME	STREET/CITY/STATE/ZIP		TITLE
	Michael Chernick	28 West 44th Street Suite 1204 New York NY 10036 United States		Secretary
DIRECTORS	NAME	STREET/CITY/STATE/ZIP		
	Suraj J Mehta	28 West 44th Street Suite 1204 New York NY 10036 United States		
Total number of directors:1				
NOTICE: Pursuant to 8 Del. C. 502(b), If any officer or director of a corporation required to make an annual franchise tax report to the Secretary of State shall knowingly make any false statement in the report, such officer or director shall be guilty of perjury.				
AUTHORIZED BY (OFFICER, DIRECTOR OR INCORPORATOR)		DATE	TITLE	
Michael Chernick		2014-02-26	Secretary	
28 West 44th Street Suite 1204		New York NY 10036 United States		

State of Delaware

Annual Franchise Tax Report

CORPORATION NAME			TAX YR.	
GEMESIS, INC.			2014	
FILE NUMBER	INCORPORATION DATE	RENEWAL/REVOCATION DATE		
5327015	2013/04/30			
PRINCIPAL PLACE OF BUSINESS			PHONE NUMBER	
28W 44TH ST STE 1204			646/652-8924	
NEW YORK NY 10036 United States				
REGISTERED AGENT			AGENT NUMBER	
NATIONAL CORPORATE RESEARCH, LTD.			9070044	
615 S. DUPONT HWY				
DOVER DE 19901				
AUTHORIZED STOCK	END DATE	DESIGNATION/ STOCK CLASS	NO. OF SHARES	PAR VALUE/ SHARE
BEGIN DATE				
2013/04/30		COMMON	1,000	.001000
OFFICER	NAME	STREET/CITY/STATE/ZIP		TITLE
	Lisa Bissell			
	28W 44th St Ste 1204			President
	New York NY 10036 United States			
DIRECTORS	NAME	STREET/CITY/STATE/ZIP		
	Teresa Tongson			
	28w 44th St Ste 1204			
	New York NY 10036 United States			
=====				
Total number of directors:1				
NOTICE: Pursuant to 8 Del. C. 502(b), If any officer or director of a corporation required to make an annual franchise tax report to the Secretary of State shall knowingly make any false statement in the report, such officer or director shall be guilty of perjury.				
AUTHORIZED BY (OFFICER, DIRECTOR OR INCORPORATOR)		DATE		TITLE
Teresa Tongson		2015-01-07		Secretary
28w 44th st Ste 1204				
New York NY 10036 United States				

77.91102.100000290176851&type=3&theater

Like · Comment

**Alpesh Vora**

December 14, 2015 at 7:14pm

<https://www.facebook.com/photo.php?fbid=1075780282441634&set=a.369444589741877.91102.100000290176851&type=3&theater>

**Pure Grown Diamonds**

March 18 at 11:36pm ·

Like Page

The perfect three stone ring, just in time for Spring!

Find a Pure Grown Diamonds retailer near you: <http://bit.ly/1S9Xukx>

Like · Comment · Share

**Ila Technologies** shared their photo.

March 4 ·

How does a whopping 3 carat #GrownDiamond ring look like? Like this stunner!

The best part -- this [diamond](#) has not been dug out of earth so has not destroyed any natural habitat -- a pure background, if you may, yet comes with certified guarantee for its purity and rarity.

Check Out www.puregrowndiamonds.com now for more such stunning #growndiamond jewellery... #TheRightThingToDo #ResponsibleLuxury

**Ila Technologies**

April 30, 2015 ·

Like Page

The World's Largest Grown Diamond -- a 3.04 carat Type Ila diamond, certified and is retailed by Pure Grown Diamonds

Like · Comment · Share

**Ila Technologies**

March 2 · Singapore ·

Happy customers with their #growndiamond ring! #TheRightThingToDo #PureGrownDiamonds

**Man Made Diamonds**

CBS2's Kenneth Craig reports.

MSN.COM

Like · Comment · Share

Shilpi Seth Shukla

2 shares



Write a comment...



Ila Technologies shared Pure Grown Diamonds's post.

February 16 · 🌐



Pure Grown Diamonds

Like Page

February 14 · 🌐

A great story just before Valentine's Day! Congratulations to the wonderful couple, Jordan Hill and Kim Pavlacka, on your engagement! Thank you for choosing Pure Grown Diamonds and for making what we do such a treasure!



Man-made diamonds identical to mined gems

Millions will get engaged on Valentine's Day, and most will involve a diamond ring. But a new option offers authentic diamonds for less money.

WTOL.COM

Like

Comment

Share



Ila Technologies shared Pure Grown Diamonds's photo.

December 2, 2015 · 🌐

#ChristmasIsHere #GrownDiamonds #EcoAdvantage



Pure Grown Diamonds

Like Page

December 2, 2015 · 🌐

If you can dream it, then you can #CreateIt

Find a #PureGrownDiamonds retailer near you: <http://bit.ly/1S9Xuix>

Like

Comment

Share

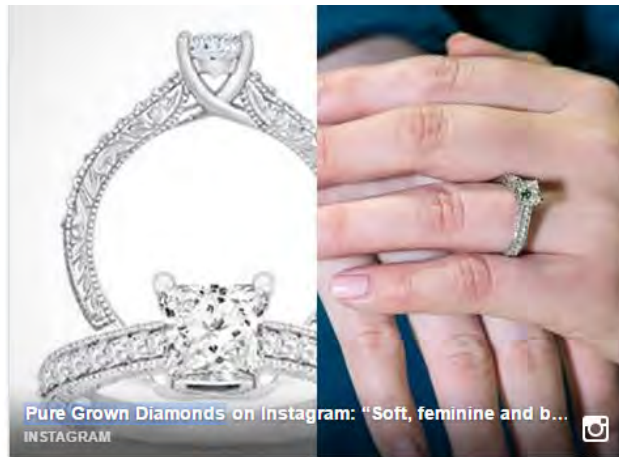


Ila Technologies

November 25, 2015 · Singapore · 🌐

Soft, feminine and beautiful, the #PureGrownDiamond #PrincessCut is a timeless look. #WhereIsMyChristmasGift





Like Comment Share

Ila Technologies shared a link.
November 24, 2015 ·

WENG
News Talk
1530 AM • 107.5 FM
The Information Station
www.wengradio.com

Pure Grown Diamonds on WENG Radio

Pure Grown Diamonds on WENG Radio discussing Why Lab Grown Diamonds Are Up To 40% Less Than Mined Diamonds.

YOUTUBE.COM

Like Comment Share

See More Results ▾

2015

HIGHLIGHTS ▾

Ila Technologies
March 22 at 4:03pm · Singapore ·

#LabGrownDiamonds are 100% genuine diamonds and 100% origin guaranteed.

Now, start your 'happily everafter' with the purest of diamonds grown above ground #PureGrownDiamonds

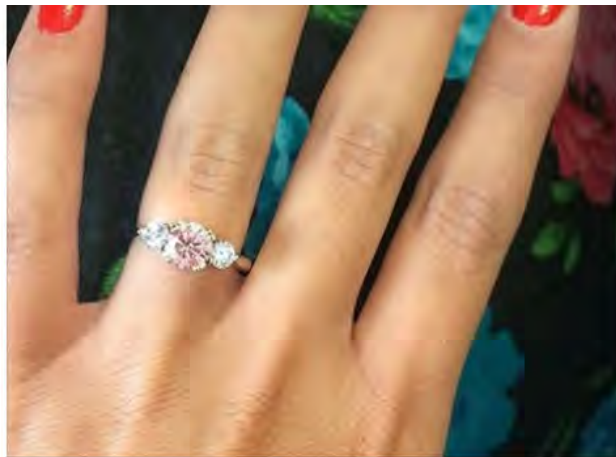
Pure Grown Diamonds on Instagram: "#LOVE is sweet as a..."

INSTAGRAM

Ila Technologies shared Pure Grown Diamonds's photo.
March 22 at 3:11pm ·

How beautiful these #labgrowndiamonds are!





Pure Grown Diamonds

March 18 at 11:36pm · 🌐

👍 Like Page

The perfect three stone ring, just in time for Spring!

Find a Pure Grown Diamonds retailer near you: <http://bit.ly/1S9Xukx>



Ila Technologies shared their photo.

March 4 · 🌐

How does a whopping 3 carat #GrownDiamond ring look like? Like this stunner!

The best part -- this [diamond](#) has not been dug out of earth so has not destroyed any natural habitat -- a pure background, if you may, yet comes with certified guarantee for its purity and rarity.

Check Out www.puregrowndiamonds.com now for more such stunning #growndiamond jewellery... #TheRightThingToDo #ResponsibleLuxury



Ila Technologies

April 30, 2015 · 🌐

👍 Like Page

The World's Largest Grown Diamond -- a 3.04 carat Type Ila diamond, certified and is retailed by Pure Grown Diamonds



Ila Technologies

March 2 · Singapore · 🌐

Happy customers with their #growndiamond ring! #TheRightThingToDo #PureGrownDiamonds



Man Made [Diamonds](#)

CBS2's Kenneth Craig reports.

MSN.COM

Ila Technologies shared **Pure Grown Diamonds's** post.
February 16 · 🌐

Pure Grown Diamonds
February 14 · 🌐 Like Page

A great story just before Valentine's Day! Congratulations to the wonderful couple, Jordan Hill and Kim Pavlacka, on your engagement! Thank you for choosing Pure Grown Diamonds and for making what we do such a treasure!



Man-made diamonds identical to mined gems
Millions will get engaged on Valentine's Day, and most will involve a diamond ring. But a new option offers authentic diamonds for less money.
WTOL.COM

Ila Technologies shared **Pure Grown Diamonds's** photo.
December 2, 2015 · 🌐

#ChristmasIsHere #GrownDiamonds #EcoAdvantage



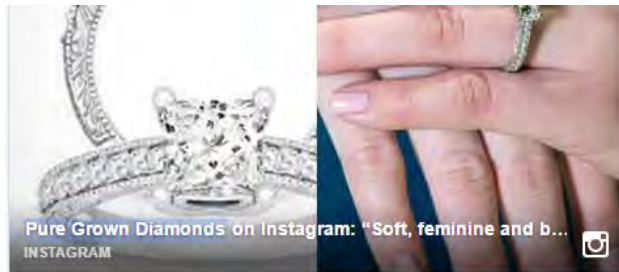
Pure Grown Diamonds
December 2, 2015 · 🌐 Like Page

If you can dream it, then you can #CreateIt
Find a #PureGrownDiamonds retailer near you: <http://bit.ly/1S9Xuix>

Ila Technologies
November 25, 2015 · Singapore · 🌐

Soft, feminine and beautiful, the #PureGrownDiamond #PrincessCut is a timeless look. #WhereIsMyChristmasGift





Pure Grown Diamonds on Instagram: "Soft, feminine and b..."

Ila Technologies shared a link.
November 24, 2015 ·

WENG News-Talk
1530 AM - 107.5 FM
The Information Station
www.wengradio.com

Pure Grown Diamonds on WENG Radio
Pure Grown Diamonds on WENG Radio discussing Why Lab Grown Diamonds Are Up To 40% Less Than Mined Diamonds.
YOUTUBE.COM

Ila Technologies
November 23, 2015 · Singapore ·

Lisa Bissell, CEO of [Pure Grown Diamonds](#), explains the breakthrough technology that's making the revolution possible.

The end product is indistinguishable from the mined product. Best of all there's no mining caused pollution, no conflict blood diamonds.

The prices are substantially less than their mined competitors, with absolutely no diminution of quality. Truly revolutionary!
#SustainableDiamonds

Financial Survival Network Pure Grown Diamonds
Pure Grown Diamonds (www.puergrowndiamonds.com) on the Financial Survival Network. Lisa Bissell, CEO of [Pure Grown...](#)
YOUTUBE.COM

Like Comment Share

Ila Technologies
November 19, 2015 · Singapore ·

Style expert Michael O'Connor debuts a fashionable first in diamonds, [Pure Grown Diamonds](#) epic 76 carat necklace designed by Yanina & Co
#Awesomeness #SustainableDiamonds #EcoConscious

Pure Grown Diamonds Emmy Debut
Style expert Michael O'Connor debuts a fashionable first in diamonds - [Pure Grown Diamonds](#) epic 76 carat necklace designed by Yanina & Co.
YOUTUBE.COM

Like Comment Share

1 share

Write a comment...

Ila Technologies
November 18, 2015 ·

Celebrities and top Hollywood wardrobe stylists admired jewelry from [Pure Grown Diamonds](#) at the StyleLab Suite, which took place during Emmy Awards week. [Pure Grown Diamonds](#) offer affordable luxury to today's socially responsible consumer; they are the world's only eco-friendly and conflict free diamond.





Celebrities Admiring Jewelry from Pure Grown Diamonds at the StyleLab Suite During Emmy Awards Week
From Left to Right: Ashley Baumann, Suzanne Cryer, Alexandra Billings, Maitland Ward

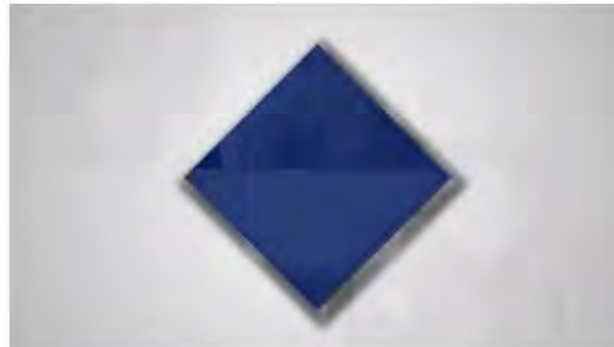
Celebrities And Their Stylists Previewed Jewelry From Pure Grown Diamonds At StyleLab's Suite...

LOS ANGELES, Sept. 20, 2015 /PRNewswire/ -- Celebrities and top Hollywood wardrobe stylists admired jewelry from Pure...

PRNEWswire.COM | BY STYLELAB

Like Comment Share

Ila Technologies shared [Pure Grown Diamonds's](#) video.
 October 22, 2015 · 🌐



11,998 Views

Pure Grown Diamonds
 October 2, 2015 · 🌐

Like Page

The NEW diamonds for #Millennials are Pure Grown Diamonds!

Like Comment Share

Ila Technologies via [Pure Grown Diamonds](#)
 July 24, 2015 · 🌐



6 Things You Should Know About Lab-Grown Diamonds

Demand for diamonds is growing but supply couldn't keep up--until now
 POPSCI.COM

Like Comment Share

2

1 share



Write a comment...



Ila Technologies
 July 23, 2015 · 🌐

Pure Grown Diamonds has been voted as the "Most Socially Responsible" Brand of the year... A big shoutout to all those who voted Thank You





Like Comment Share

3



Write a comment...



Ila Technologies

July 6, 2015 · 🌐

Bee-ing #SociallyResponsible !

At least 30% of the world's crops require the cross pollination of bees to produce our food. Without honeybees and other pollinators, many food crops will die out.

... See More



Social Responsibility - Need for Honeybees

Why Are Honeybees So Essential? Because these tiny workers are directly responsible for putting food on our tables. Honeybees transfer pollen from one flower to another, fertilizing them so that th...

PUREGROWNDIAMONDS.COM

Like Comment Share

Shilpi Seth Shukla

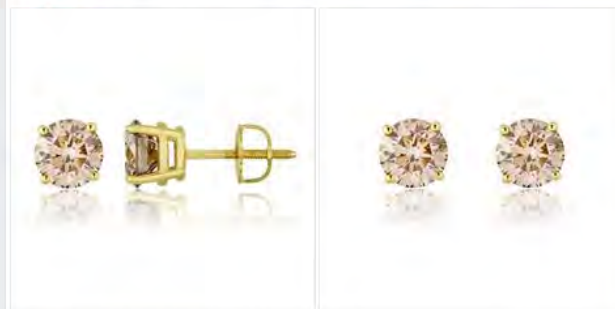


Write a comment...



Ila Technologies shared [Pure Grown Diamonds's](#) post.

July 2, 2015 · 🌐



Pure Grown Diamonds added 2 new photos.

July 2, 2015 · 🌐

Like Page

Nothing makes us smile quite like a happy customer...

"Just a note to say how much I adore my pure champagne diamond earrings. I have had an eye on you all for ..."

See More

Like Comment Share



Ila Technologies shared [Pure Grown Diamonds's](#) photo.

July 1, 2015 · 🌐



Pure Grown Diamonds

June 25, 2015 · 🌐

👍 Like Page

As a Finalist in the 2015 Eco-Excellence Awards by NCW Magazine we strive for excellence in the world of #Sustainability & Social Responsibility.

Please take ...

See More

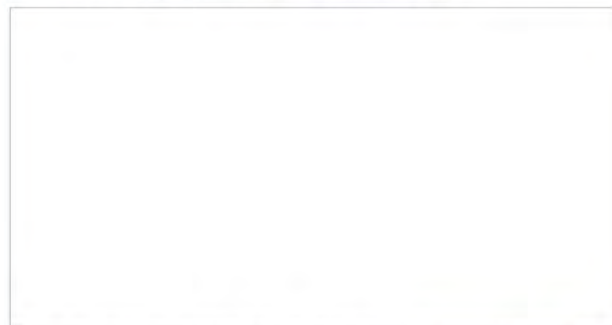
👍 Like 💬 Comment ➦ Share

 **Ila Technologies**

June 30, 2015 · 🌐

Our sister retail brand, [Pure Grown Diamonds](#), has been shortlisted as one of the five finalists for NCW's 2015 Eco-Excellence Awards, the premier award program to recognize excellence in the world of social and environmental sustainability!

Please do cast your vote for [Pure Grown Diamonds](#) now. Just visit www.2atechnologies.com and follow the step-by-step guide (PDF guide available on site) to vote. Go team #GrownDiamonds !!!



Ila Technologies Pte Ltd. - Leaders in [Grown Diamond Technology](#)

Cutting-edge [Grown Diamond Technology](#) for growing pure, eco-friendly Ila Diamonds for high performance industrial applications and the Jewellery industry.

2ATECHNOLOGIES.COM

👍 Like 💬 Comment ➦ Share


👍 Sandesh Advani

1 share



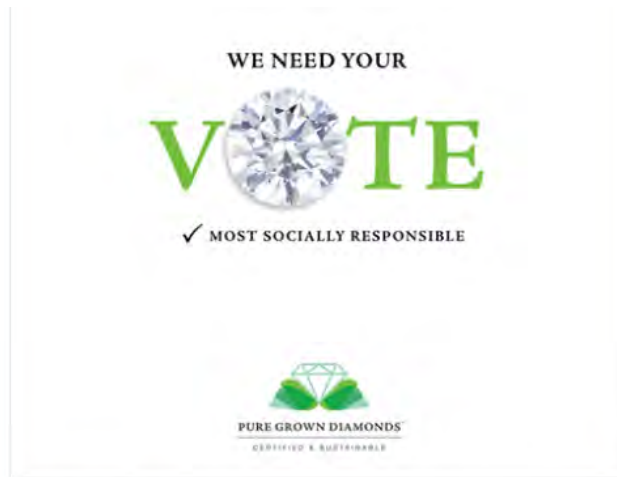
Write a comment...



 **Ila Technologies** shared [Pure Grown Diamonds's](#) photo.

June 23, 2015 · 🌐




Pure Grown Diamonds

June 20, 2015 · 🌐

Like Page

Dear Fans... We have been selected as Finalist in the 2015 Eco-Excellence Awards™ by NCW Magazine! Please take a moment to vote for Pure Grown Diamonds in the Most Socially Responsible category. #Vote Here <http://bit.ly/1BuQQRX>

Like Comment Share

Ila Technologies

Top Comments ▾



Write a comment...



Ila Technologies Have you voted yet? Make us the #MostSociallyResponsible brand!

Like · Reply · June 24, 2015 at 5:03pm


Ila Technologies

June 9, 2015 · 🌐

What are [#PureGrownDiamonds](#)? This video will answer all your questions ...Ask for [#IlaGrownDiamonds](#) and get the rarest [#TypellaDiamonds](#) , prized for their purity!


A New Choice in Diamonds - Pure Grown Diamonds

What are [#PureGrownDiamonds](#) ? This video will answer all your questions & more. Check here more details <http://goo.gl/1FukB7>

YOUTUBE.COM

Like Comment Share


Shilpi Seth Shukla

1 share



Write a comment...


Ila Technologies via Lisa Bissell CEO

May 19, 2015 · 🌐

Even the celebrities are sporting our diamonds to red carpets. Because to be really, truly, beautiful, you need to take the first step towards [#SUSTAINABLEDiamonds](#) that are [#CulturedInSingapore](#)


Heather McDonald

Heather McDonald is all about the bling, and the truth of [Pure Grown Diamonds](#) - at the Hollywood Domino Artists for Peace and Justice Pre-Oscar Charity Soiree.

YOUTUBE.COM

Like Comment Share


Ila Technologies

May 18, 2015 · 🌐

We have a new [#YouTube](#) Page. Come have a look at all the fantastic

news coverage that our sister retail brand, [Pure Grown Diamonds](#) got when it unveiled the "Largest Grown Diamond in the US retail markets."
#GrownDiamonds #SustainableLuxury #LargestGrownDiamond

www.youtube.com

YOUTUBE.COM

Like Comment Share

2

1 share



Write a comment...



Ila Technologies added a new photo to the album:
Launch of World's Largest Diamond Greenhouse in Singapore.

May 6, 2015 ·

Ila Grown Diamonds set in exquisite bridal jewellery, retailed by [Pure Grown Diamonds](#)



Like Comment Share

Sreejith H Nair



Write a comment...



Ila Technologies shared [Pure Grown Diamonds's](#) photo.

May 5, 2015 ·

Give the most precious gift of love to Mom but make it a gift that doesn't require digging up Mother Earth or pumping her with carbon emissions. Buy #GrownDiamonds -- the better way to show your love!



Pure Grown Diamonds

May 5, 2015 ·

Like Page

we've got the gifts for the one that does it all...

Receive 10% OFF on loose diamonds & finished jewelry.
#MothersDay Sale going on Now - May 6th!
Start sho...

See More

Like Comment Share



Ila Technologies

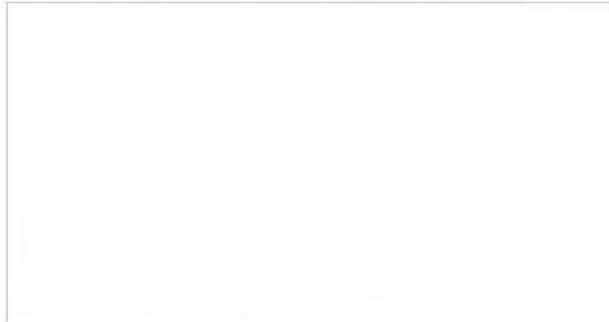
May 4, 2015 ·

How to explain Grown Diamonds? Think Cultured Pearls!

Grown Diamonds (retailed by [Pure Grown Diamonds](#)) are genuine diamonds which are sustainable, certified and conflict free.

We call it -- "The better way to start your journey of love ..."

#SustainableLuxury #GrownDiamonds



Lab grows discount diamonds -- real ones

They sparkle and shine like real diamonds -- because they are real diamonds. They're just a lot younger -- and cheaper -- than the stone on your finger. But will they sell?

MYFOXTAMPABAY.COM | BY FOX

Like Comment Share

Lisa Pgd



Write a comment...



Ila Technologies

April 30, 2015 ·

Celebrities share their feelings about the #sociallyresponsible benefits of [Pure Grown Diamonds](#) at the Artists for Peace and Justice Pre-Oscar Charity Soiree.

Featuring #OscarWinner Patricia Arquette, Kevin and Danielle Jonas, AnnaLynne McCord, Omar and Keisha Epps and Heather McDonald.



Celebrity Love For [Pure Grown Diamonds](#)

Celebrities share their feelings about the socially responsible benefits of [Pure Grown Diamonds](#) at the Artists for Peace and Justice Pre-Oscar Charity...

YOUTUBE.COM

Like Comment Share

Sidali Germano-phile



Write a comment...



Ila Technologies via [Pure Grown Diamonds](#)

April 30, 2015 ·






Earth Day: 45th Anniversary!
 Visit the post for more.
 PUREGROWNDIAMONDS.COM

Like Comment Share

Ila Technologies added a new photo to the album:
 Launch of World's Largest Diamond Greenhouse in Singapore.
 April 30, 2015 · 🌐

Our Pink Diamonds -- retailed by [Pure Grown Diamonds](#) -- are Type Ila quality which is the rarest diamond grade



Like Comment Share

Ila Technologies added a new photo to the album:
 Launch of World's Largest Diamond Greenhouse in Singapore.
 April 30, 2015 · 🌐

The World's Largest Grown Diamond -- a 3.04 carat Type Ila diamond, certified and is retailed by [Pure Grown Diamonds](#)



Like Comment Share

1 share

 Write a comment...  

S'pore firm shines with lab-grown diamonds



by **CAROLYN KHEW**

THE STRAITS TIMES (/SOURCE/STRAITS-TIMES-0) | Dec 23, 2014

For their brilliance, diamonds are an object of adoration, but they are also known to have funded civil wars in African nations, resulting in what are labelled as conflict diamonds or blood diamonds.

Attempts to address the contentious issue have been made over the years, notably by growing top- quality diamonds in a laboratory.

A Singapore company has become one of the latest players in this niche industry.

Professor Devi Shanker Misra, chief technology officer at Ila (pronounced "2a") Technologies, has been growing top-grade diamonds in a lab, after eight years of research.

The cultured gems supposedly have the same composition, structure and physical properties as traditionally mined diamonds.

Earlier this month, Ila Technologies' sister company based in the United States, Pure Grown Diamonds, announced for sale a 3.04-carat brilliant-cut diamond at a price of US\$23,012 (\$\$30,260) - about 30 per cent lower than the market price of mined diamonds.

The near colourless rock is currently on tour in the US and will be put up for sale on its website next month.

The technology behind lab-grown diamonds can be explained simply as "growing diamond from diamond".

Ila Technologies' method involves a patented process called Microwave Plasma Chemical Vapour Deposition (MPCVD), where a diamond seed placed in a "diamond-growing greenhouse" is exposed to a carbon-rich environment.

Diamond seeds are crystals of diamonds which can be either mined or grown in a lab.

The greenhouse is fed with methane and hydrogen gases before electromagnetic waves of very high frequency are applied.

A plasma or a "glowing ball of fire or energy", about 5cm in diameter, is then formed and the natural crystallisation process takes place as the carbon molecules deposit over the diamond seed.

It takes about six to 10 weeks to grow a diamond before it is cut and polished.

Diamonds produced by Ila Technologies for the luxury sector are certified by the International Gemological Institute as grade Ila, a quality found in only 2 per cent of mined diamonds.

Most of the mined diamonds are type Ia, which contain 3,000 parts per million (ppm), or 0.03 per cent, nitrogen impurities.

The Ila diamonds grown in Prof Misra's lab contain very minimal or almost no impurities, with nitrogen impurities making up less than 1 ppm.

This sets them apart from diamonds made from human ashes, for example, which contain impurities like calcium phosphorous found in bones.

Prof Misra, 59, who has a PhD in physics from the Indian Institute of Technology Kanpur, became interested in growing quality diamonds about 20 years ago.

He helped set up Ila Technologies, located in Tukang Innovation Drive in Jurong, in 2005, after a chance meeting with the Mehtas - an Indian family which has been in the jewellery business for many generations.

Prof Misra met members of the Mehta family in 2001 and they shared their knowledge, industry experience and "financial capabilities". The Mehtas also invested in the business. Today, Ila Technologies is helmed by Mr Vishal Mehta, who is the chief executive.

More about

**news
POST**

Purchase this
article for
republication.

(<http://newslink.asiaone.com/ips/NewsPostEnquiryRequest.action>)

MORE FROM ASIAONE



Ex-cop in lottery row invokes supernatural 'to punish liars'

(<http://www.asiaone.com/asia/ex-cop-lottery-row-invokes-supernatural-%E2%80%98punish-liars%E2%80%99?origUrl=true>)



Granny rents out flat to newlywed grandson for 1 year...

(<http://www.asiaone.com/singapore/granny-rents-out-flat-newlywed-grandson-1-year-returns-find-home-cleared-out?origUrl=true>)



Kesha brings Grammys to tears with emotional...

(<http://www.asiaone.com/entertainment/kesha-brings-grammys-tears-emotional-metoo-performance?origUrl=true>)

AROUND THE WEB

([/#facebook](#))

([/#twitter](#))

([/#google_plus](#))

Recommended by

([/#whatsapp](#))

(<http://www.outbrain.com/what-is/default/en>)

([/#email](#))



44°



Follow Us

[Home](#) [News](#) [Sports](#) [Weather](#) [Traffic](#) [Health](#) [Boston's Best](#) [Video](#) [Audio](#) [Events](#) [Directory](#) [Travel](#) [Deals](#) [Contests](#) [Autos](#)

MetroWest Jewelry Store Selling Lab Grown Diamonds

By Lisa Hughes, WBZ-TV

February 11, 2015 5:00 PM By Lisa Hughes

Filed Under: [Diamonds](#), [lab diamonds](#), [Lisa Hughes](#), [Pure Grown Diamonds](#)

BOSTON (CBS) – There is a new way to save thousands of dollars on diamonds. New technology has now made it possible to make the sparkling gems in a lab.

LISTEN LIVE

FOLLOW US ON

[Sign Up for Newsletters](#)

“It’s not a cubic zirconia. It’s a diamond. It’s not synthetic. It’s not artificial. It is a diamond,” explains jewelry designer Ilah Cibis. Cibis owns [Precious Metals](#) of Sudbury, the first retailer in Massachusetts to sell the diamonds. “People want to feel good about what they are buying. It’s an engagement ring or a gift for Valentine’s Day. They want to have good positive feelings about it and you get that with Pure Grown Diamonds. It’s very little waste. No workers’ rights were violated in the process of growing them.”

[Pure Grown Diamonds](#) is a New-York based company. They create the diamonds in a Singapore lab over a just a few weeks by putting a carbon seed in a pressurized container. “They have all the optical, chemical, and physical properties of mined-diamonds and they are 100% carbon because they are genuine diamonds,” says company CEO Lisa Bissell.

The lab-grown diamonds have a special mark so that any trained jeweler can easily tell them apart from mined-diamonds.

These man-made diamonds cost 30% – 40% less. But some jewelers say they also carry less cachet. “‘I wed thee with a lab grown diamond.’ It doesn’t define the moment. It doesn’t adequately portray the emotion,” says jeweler Reuven Kaufman.

But in Sudbury, Cibis finds many customers taking a shine to the new bling. “It’s 30% to 40% less! How could it not catch on?” one customer said.

Lisa Hughes

Follow @lisawbz

Follow Lisa on Twitter Award-winning journalist Lisa Hughes is a news anchor for WBZ-TV News weekdays at 5PM and 11PM with co-anchor David Wade. Hughes joined the station in June 2000 after working as a correspondent for CBS Newspath, the CBS-...

More from [Lisa Hughes](#)

MORE NEWS



Longest-Tenured Boston Athletes Following David Ortiz’s Retirement



This Week In Golf: Jason Day Wins WGC-Dell Match Play



Report: Padres Scout ‘Taking A Close Look’ At Pablo Sandoval

Powered by CBS (b)

Comments

Promoted Stories

More Promoted Stories

We Recommend

- Recommended by

2/2



[Home](#) | [About Us](#) | [Technology](#) | [Products And Applications](#) | [Sustainability](#) | [Contact Us](#) | [News Links](#)

Ila Technologies Unveils World's Largest Diamond Greenhouse in Singapore

By [admin](#) | March 18, 2015

2

Announces launch of 'Cultured in Singapore' brand initiative for its origin-guaranteed diamonds

Singapore, 17 March 2015 – Singapore-based **Ila Technologies**, the world leader in Grown Diamond technology, today announced the launch of the world's largest diamond greenhouse, a 200,000 square foot, state-of-art facility that has successfully conceptualised and developed a revolutionary, commercially-viable diamond growing process for colourless, high quality, Type Ila diamonds.

Ila Technologies has also launched a Centre of Excellence (CoE) which is a first-of-its-kind diamond research centre that will contribute all the scientific know-how to different teams within Ila Technologies. The CoE aims to further develop existing diamond growing technologies and offer high quality Grown Diamonds for various hi-technology industries and applications, beyond the luxury sector. It will also continue research on the Microwave Chemical Vapour Deposition (MPCVD) method of growing diamonds so as to establish next-generation applications for Grown Diamonds that will have far-reaching implications in the semiconductor, healthcare and engineering sectors.

The world's largest diamond greenhouse developed by Ila Technologies, was inaugurated by Mr Tharman Shanmugaratnam, Singapore Deputy Prime Minister and Minister of Finance and was attended by representatives from the Economic Development Board (EDB) this morning.

Speaking at the opening, **Vishal Mehta, CEO, Ila Technologies** said, "We are extremely proud to have created the world's largest diamond greenhouse right here in Singapore, the innovation hub of Asia. Today, Ila Technologies is the only diamond greenhouse in the world that can grow high quality Type Ila diamonds, which are considered the purest and rarest types of diamonds."

Mr. Lim Kok Kiang, Assistant Managing Director of the Singapore Economic Development Board added, "Ila Technologies' investments in Singapore opens new opportunities for research into the use of diamonds for high tech applications, such as high-precision cutting tools, quantum computing data storage, optical imaging and radiation detection. This will enhance the competitiveness of Singapore's R&D ecosystem and manufacturing capabilities, particularly for the Precision Engineering, Medical Instruments, Optical Equipment, Electronics and Semiconductor industries."

Cultured in Singapore

Additionally, to coincide with Singapore's jubilee celebrations this year, Ila Technologies has also launched "Cultured in Singapore," a new brand initiative that underlines the technological advancement in diamonds that the company has achieved in Singapore. The new "Cultured in Singapore" brand mark identifies the origin of Ila Diamonds and endorses that these diamonds were 100% cultured in Singapore, a country known for its innovation and high levels of sustainability. The brand initiative is also aimed to proudly position Singapore as a Grown Diamond resource for the world.

"Ila Grown Diamonds are the first-ever sustainable, conflict-free, origin-guaranteed, high quality diamonds that were conceptualised and cultured in Singapore. Creating a diamond resource within Singapore truly showcases what the country stands for – progressive technology, innovation and business resilience," added Vishal Mehta.

A new diamond choice for consumers

Diamonds continue to see high demand throughout the world. However, the Mined Diamond supply has seen a constant decline in the past decade driven by the fact that key diamond mines have passed their peak production levels. The global Mined Diamond supply is estimated to drop to 13 million carats in 2050 from the projected 133 million carats in 2014 considering a base case scenario. This occurs in light of the rising demand from various markets such as the US, India and China which is likely to widen the demand and supply gap.

Industry reports suggest that over the next 30 years, Grown Diamonds will become a dominant player in high technology applications and very significant diamond source for the luxury world. Grown diamonds are also predicted to provide a good hedge for diversification of use in an industry that has, so far, heavily relied on a single product – gem quality diamonds.

New York-based Pure Grown Diamonds, the world's largest retailer-distributor of Ila Grown Diamonds and part of Ila Holdings Group. **Lisa Bissell, CEO, Pure Grown Diamonds**, said, "Ila Grown Diamonds come at a time where consumers are looking for more options. In addition to being conflict-free, these diamonds come at a cost that is 30-40% less. The diamonds are identical to their mined counterparts with the only difference being their point of origin."



Ila Technologies launches the new brand initiative, Cultured in Singapore (L-R) Event emcee; Professor D S Misra, CTO, Ila Technologies; Vishal Mehta, CEO, Ila Technologies; Sonia Mehta; Mr Tharman Shanmugaratnam, Deputy Prime Minister and Minister for Finance; Mr Girija Pande, Director, Ila Technologies; Suraj Mehta



Mr Vishal Mehta, CEO of Ila Technologies explains the diamond growing process to Mr Tharman Shanmugaratnam, Deputy Prime Minister and Minister for Finance



World's largest grown diamond by Ila Technologies – 3.04 carat A near-colorless 3.04 carat, round stone, I color, SI1 clarity, very good cut.



Ila Technologies pink grown diamonds



Ila Technologies colourless diamonds

###

About Ila Technologies

Established in 2005, Singapore headquartered Ila Technologies Pte Ltd is the industry leader in Grown Diamond technology. Through years of cutting-edge research, the company has created commercially viable and sustainable processes to grow the purest form of colourless diamonds classified as Type IIa. Devoid of chemical impurities, Grown Diamonds by Ila Technologies has applications in the mechanical, manufacturing and aerospace industries as well as in the gems and jewellery industry. Ila Technologies is a part of Ila Holdings Group, which also owns NY-based retailer-distributor, Pure Grown Diamonds. For more information: <http://2atechnologies.com/>

For further information please contact:

Shelina Mahtani / Claudia Wong
Fifth Ring for Ila Technologies
Tel : +65 6297 7280 / +65 6297 7270
shelina.mahtani@fifthring.com /
claudia.wong@fifthring.com

Priyanka Joshi
Ila Technologies
Tel : +65 6555 5825
pjoshi@2a-tech.com.sg

⇐ Diamond Co Seeks MoUs For R&D With Indian Institutes, Others

Making The Cut: How Diamonds Are Grown ⇒

PEARL HOURS

Time to treat yourself or your loved ones to quality pearls!

[About Us](#) | [Free Shipping Always](#) | [Testimonials](#)[View cart \(0\)](#)[Quick Reply](#) [Leave Message](#)[Home](#)[Pearl Jewelry](#)[Custom Jewelry](#)[Clearance](#)[Gift Showcase](#)[Pearl Jewelry Guide](#)[About Us](#)[Contact Us](#)[Home](#) » [Jewelry News](#) » [World's largest diamond factory opens in Singapore](#)[Buy One Get One Free!](#)[Search](#)

World's largest diamond factory opens in Singapore

[Like](#) [Share](#) Be the first of your friends to like this.

March 19, 2015

Ila Technologies CEO Vishal Mehta explains the diamond growing process to Tharman Shanmugaratnam, Singapore's Deputy Prime Minister and Minister for Finance.

Singapore--Lab-grown diamond company Ila Technologies has opened a 200,000-square-foot facility it is calling the "world's largest" diamond factory.

The Singapore-based company said the building is a "state-of-(the)-art facility that has successfully conceptualized and developed a revolutionary, commercially viable diamond growing process for colorless, high-quality, Type Ila diamonds."

Pure Grown Diamonds, the New York-based company formerly known as Gemesis Inc. **before it rebranded last July**, is the largest distributor of Ila Technologies' lab-grown diamonds, and both companies are owned by Ila Holdings Group. Pure Grown Diamonds CEO Lisa Bissell said Ila Technologies' diamonds "come at a time when consumers are looking for more options."

"In addition to being conflict-free, these diamonds come at a cost that is 30 percent to 40 percent less," she said. "The diamonds are identical to their mined counterparts with the only difference being their point of origin."

In addition to the growing facility, Ila Technologies also has unveiled a "Centre of Excellence" in Singapore, a diamond research center that will aim to further develop diamond growing technologies for various industries and uses beyond the luxury sector.

"Ila Technologies' investments in Singapore opens new opportunities for research into the use of diamonds for high-tech applications, such as high-precision cutting tools, quantum computing data storage, optical imaging and radiation detection," said Lim Kok Kiang, assistant managing director of the Singapore Economic Development Board. (source: national jeweler)



Shop by Jewelry Type

- [Pearl Earrings](#)
- [Pearl Rings](#)
- [Pearl Necklaces](#)
- [Pearl Pendants](#)
- [Pearl Bracelets](#)
- [Pearl Jewelry Sets](#)

Shop by Pearl Type

- [Akoya Pearls](#)
- [Tahitian Pearls](#)
- [Freshwater Pearls](#)
- [South Sea Pearls](#)

Shop by Price

- [Under \\$100](#)
- [\\$100-500](#)
- [\\$500-1000](#)
- [\\$1000-\\$2000](#)
- [Over \\$2000](#)

Shop by Color

- [White](#)
- [Pink](#)
- [Lavender](#)
- [Golden](#)
- [Black](#)
- [Multicolor](#)

Latest Reviews

Sonja, The pearls arrived this morning. They are lovely - my wife will be very pleased. Thank you for your excellent customer service!

Robin

[More testimonial](#)[Share](#) | [f](#) [t](#) [g+](#) [e](#) [Fancy](#)[Top](#)

About Us

[About Pearl Hours](#)
[Why Buy From Us](#)
[Testimonials](#)

Order Guideline

[How to order](#)
[How to make Payment](#)
[Change or cancel](#)

Shipping & Return

[Free Shipping](#)
[Tracking your Order](#)
[30-Day Money-back Guarantee](#)

Customer Service

[FAQs](#)
[Leave a message](#)

[Home](#) | [Terms and Conditions](#) | [Privacy Policy](#) | [Secure Shopping](#) | [Links](#) | [Newsletter](#) | [Site Map](#)

Buy High Quality Pearls, Pearl Jewelry, Pearl Necklace online at PearlHours.com

Copyright © 2008 - 2011 PearlHours.com

This is the Exhibit marked “SFW-42”


referred to in the Affidavit of

Susan Jane Fletcher Watts

affirmed in the United Kingdom

on this 27 day of March 2018

Before me

A handwritten signature in black ink, appearing to read 'Richard Griffiths', written over a horizontal line.

A NOTARY PUBLIC

RICHARD GARETH GRIFFITHS
Solicitor & Notary Public
Downend Lodge
Chieveley
ENGLAND PG20 8TN

Exhibit No.	Description	Page No.
42(a)	Characterisation of an optical grade single crystal CVD synthetic diamond sample (NL719-06) supplied by Ila Technologies Pte Ltd	304
42(b)	Sales quotation from Ila Technologies Pte Ltd to Septem Asia	313
42(c)	Delivery Order associated with Invoice no IlaINV1516-0241	315
42(d)	Ila Technologies Invoice no IlaINV1516-0241	316
42(e)	Email chain between Pascal Pierra and Lin Lin	317
42(f)	Courier documents	340

CONFIDENTIAL

De Beers Technologies UK

TECHNICAL NOTE

Title: Characterisation of an optical grade single crystal CVD synthetic diamond sample (NL719-06) supplied by Ila Technologies Pte Ltd

Authors: Philip Martineau and Brad Cann

Date: 5 October 2016

1. Summary

This report describes the results of characterisation of an optical grade single crystal CVD synthetic diamond plate provided by Ila Technologies Pte Ltd to Pascal Pierra of Septem Asia in Singapore. The sample was sent to De Beers Technologies UK for analysis and was assigned internal reference number NL719-06. It had the following dimensions: 5.03 mm x 5.01 mm x 0.68 mm.

This optical grade plate has optical absorption and luminescence characteristics of nitrogen-doped single crystal CVD synthetic diamond material that has not been annealed to high temperatures after growth. As much of the material produced by Ila Technologies Pte Ltd that we had previously studied had been annealed to high temperature after growth, this study was an interesting opportunity to extend our understanding of the characteristics of as-grown single crystal CVD synthetic diamond produced by Ila Technologies Pte Ltd.

Electron Paramagnetic Resonance (EPR) measurements carried out at the University of Warwick indicated that the concentration of neutral single substitutional nitrogen in NL719-06 was 130(10) ppb ($2.29 \times 10^{16} \text{ cm}^{-3}$).

Laser calorimetry measurements of absorption coefficient of NL719-06 at 1064 nm were made at Laser Zentrum Hannover. The absorption coefficient at 1064 nm was found to be $0.0081(9) \text{ cm}^{-1}$.

Metripol images of NL719-06 were recorded at Warwick University. Only first order birefringence was observed. Over the selected 1.3 mm x 1.3 mm area $\sin \delta$ and $|\sin \delta|$ did not exceed 0.317(20). Over the selected 2.5 mm x 2.5 mm area $\sin \delta$ and $|\sin \delta|$ did not exceed 0.568(20). For the chosen 1.3 mm x 1.3 mm area, the maximum Δn value was $4.45(30) \times 10^{-5}$. For the 2.5 mm x 2.5 mm area the maximum Δn was $8.34(30) \times 10^{-5}$.

CONFIDENTIAL

De Beers Technologies UK

2. Introduction

The sample was bought from Ila Technologies Pte Ltd by Pascal Pierra of Septem Asia (with five other samples) and was shipped to De Beers Technologies UK on 13 January 2016. Figure 1 shows a sales quotation (dated 23 October 2015) that Pascal Pierra had received from Ila Technologies Pte Ltd. At De Beers Technologies UK the sample was assigned internal reference number NL719-06.


Ila Technologies Pte Ltd				
17 Taling Innovation Drive, Singapore 412005				
Tel: (67) 6555 5825 Fax: (65) 6555 5839				
Co Reg No: 200740613L GST Reg No: M00197230				
SALES QUOTATION				
To: Septem Asia		Quotation No: IlaQT/1516-124		
		Date: 23.10.2015		
S/N	DESCRIPTION	Item Code	MOQ	Unit Price (USD)
1	Lab Grown Diamond Plates	2PCVD404005N	3	350.00
2	Lab Grown Diamond Plates	2PCVD505005N	3	450.00
Sub Total			6.0	\$ 2,400.00
			Basic Freight/Ins Charges	
			GST @ 0%	\$ 168.00
			Total - US\$	\$ 2,568.00
Terms and Condition Payment Term: : 30 Days Delivery Date : 8-10 weeks Trade Term: : Ex Work (Ila Tech) Validity : Quote is valid for 30 days from date of issue				
			 Authorized Signature	
RSC-01 F2 Rev 0				

Figure 1: Scanned copy of the quote sent by Ila Technologies Pte Ltd to Pascal Pierra for “Lab Grown Diamond Plates”

Pascal Pierra purchased three of the optical grade lab grown CVD single crystal diamond plates with the item code 2PCVD404005N and three of the plates with item code 2PCVD505005N. Figure 2 is a scanned copy of the email sent to Pascal Pierra by an employee of Ila Technologies Pte Ltd to which the quotation was attached.

CONFIDENTIAL
De Beers Technologies UK

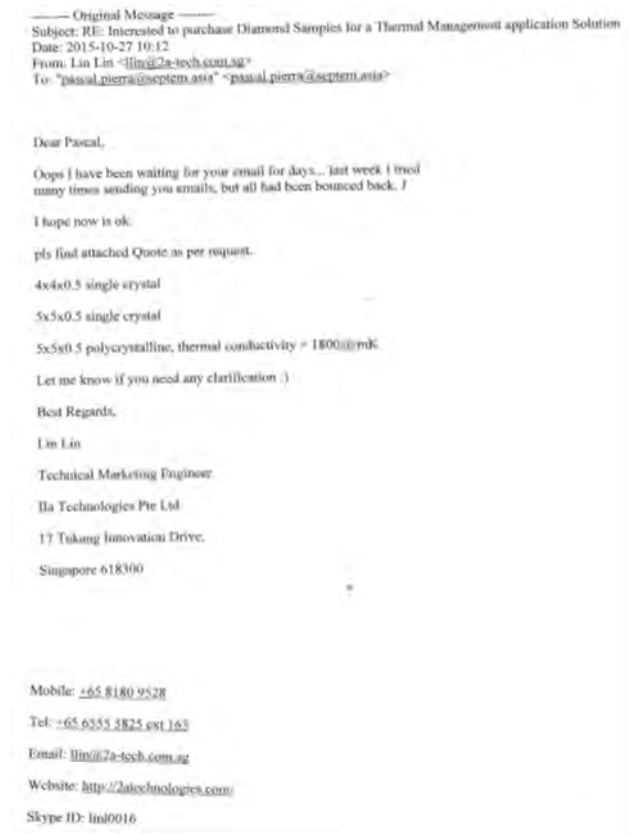


Figure 2: Scanned copy of the email sent by an employee of Ila Technologies Pte Ltd to Pascal Pierra of Septem Asia to which the quotation shown in figure 1 was attached.

Sample	x (mm)	y (mm)	Thickness (mm)	Weight/ct
NL719-06	5.03	5.01	0.68	0.30

Table 1: The measured dimensions and weight of the NL719-06 sample received by De Beers Technologies UK.

CONFIDENTIAL

De Beers Technologies UK

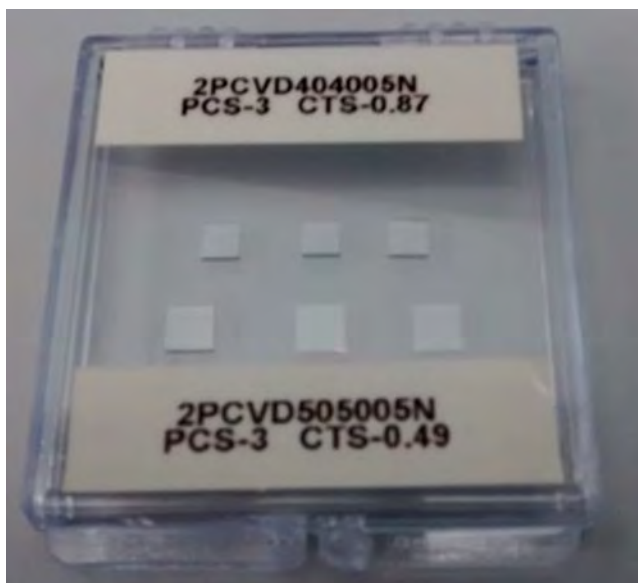


Figure 3: Image of the sample box and the samples (3 pieces with item code 2PCVD404005N and 3 pieces with item code 2PCVD505005N). Note that the weights have been incorrectly allocated to the two sets of samples. The three larger samples (item code 2PCVD505005N) have a total weight of 0.87 ct and the three smaller samples (item code 2PCVD404005N) have a total weight of 0.49 ct.

3. Crossed Polariser Images

Crossed polariser images of the sample were recorded using a Wild M420 microscope with white light illumination of the sample. Two of the images are shown in figure 4. The absence of colours in this image is consistent with first order birefringence.

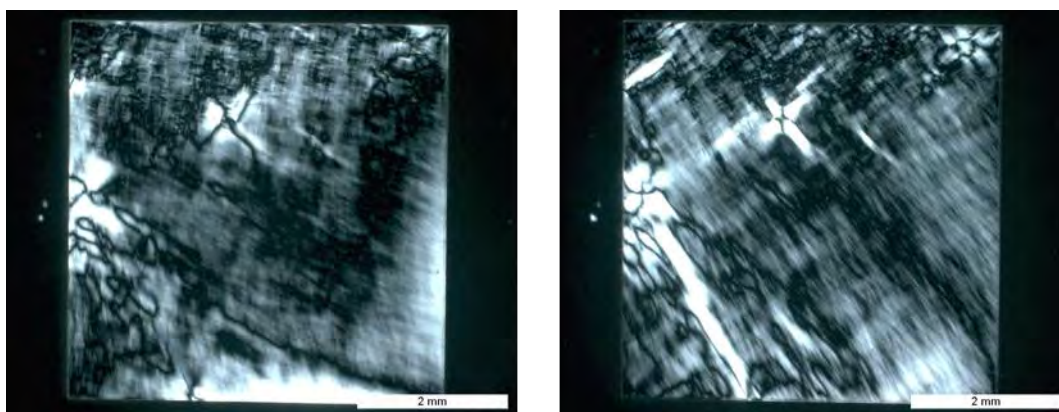


Figure 4: Crossed polariser images of NL719-06 recorded with the polarisation directions of the two polarisers perpendicular to each other. For the image on the left they were at 45 degrees to the edges of the sample. For the image on the right they were parallel to the edges of the sample.

4. DiamondView and Photoluminescence Spectroscopy

In a DiamondView instrument, the sample was illuminated with shortwave UV radiation and an image of the resulting surface fluorescence was captured (Figure 5). No phosphorescence was observed from this sample in DiamondView but the dominant colour of the fluorescence was orange and the image shows the typical striations that relate to different uptake of defects on the risers and terraces of steps that form on the growth surface during CVD synthesis. The observation of the striations is strong evidence that this material was produced by CVD synthesis. Photoluminescence spectroscopy (carried out with 514 nm excitation at 77 K) confirmed that nitrogen vacancy (NV) defects with zero phonon lines at 575 nm and 637 nm were present in the sample. The Raman normalised intensities for the lines at 575 nm and 637 nm were found to be 3.2 and 1.7 respectively. It is well known that nitrogen vacancy defects show orange photoluminescence and tend to be grown into CVD synthetic diamond when nitrogen is present in the growth environment and, as a result, DiamondView fluorescence images of as-grown CVD synthetic diamond samples tend to be orange in colour. When nitrogen doped CVD synthetic diamond samples are annealed (heat treated) at high temperatures the concentrations of nitrogen vacancy defects decrease and H3 defects (composed of two nitrogen atoms and a neighbouring vacancy) form. As H3 defects show green luminescence, when samples are annealed the dominant luminescence colour tends to change from orange to green. The DiamondView image is therefore consistent with the belief that the sample has not been annealed at high temperatures.

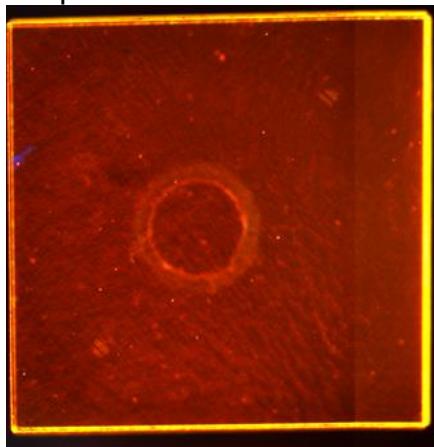


Figure 5: DiamondView surface fluorescence image of NL719-06

5. Electron Paramagnetic Resonance

Electron paramagnetic resonance (EPR) was used to measure the concentration of neutral single substitutional nitrogen (N_s^0) within the samples from the strength of the P1 EPR lines. This work was carried out at Warwick University.

Sample	N_s^0 concentration from rapid scan EPR
NL719-06	130 (10) ppb ($2.29 \times 10^{16} \text{ cm}^{-3}$).

Table 3: N_s^0 concentrations from rapid scan EPR

The EPR result for a given sample indicates the concentration of the N_s^0 defect measured over the entire sample. The UV/visible spectroscopy result (see section 7) only indicates the concentration in the region defined by the aperture through which the absorption spectrometer beam passes. This difference can sometimes cause N_s^0 concentrations measured using UV/visible absorption spectroscopy and EPR to differ, but in this case the measurements are in reasonable agreement.

6. Near-Infrared Absorption

NL719-06 was sent to Laser Zentrum Hannover for laser calorimetry measurements of absorbance at 1064 nm. The method followed ISO 11551 and gave an absorbance result for the NL719-06 plate of 549 ppm (5.49×10^{-4}). From this result and the thickness of the plate (0.68 mm) an absorption coefficient at 1064 nm of $0.0081(9) \text{ cm}^{-1}$ was deduced.

Sample	Thickness	Absorbance	Absorption coefficient (cm^{-1})
NL719-06	0.68	5.49×10^{-4}	0.0081

Table 4: NIR absorption coefficient results for NL719-06

7. Fourier Transform Infrared (FTIR) and UV/visible Absorption Spectroscopy

The FTIR spectrum of NL719-06 was found to contain very little absorption apart from the intrinsic absorption of diamond. A weak peak was observed at 1332 cm^{-1} peak, suggesting an upper limit of 0.1 ppm for the N_s^+ concentration, but the concentration of neutral single substitutional nitrogen was low enough for no peak to be observed at 1344 cm^{-1} . This is consistent with the relatively low neutral single substitutional nitrogen (N_s^0) concentration (0.130 ppm) measured using EPR. No absorption peak was observed at 3123 cm^{-1} , indicating that the concentration of the NVH^0 defect was below the detection limit.

The UV/visible absorption spectrum of NL719-06 was found to contain a weak feature at 270 nm consistent with an N_s^0 concentration of 0.11 ppm, in reasonable agreement with concentration determined using EPR.

8. Metripol Analysis of Optical Quality

The parallel-sided plate NL719-06 was imaged using a Metripol microscope at Warwick University using an illumination wavelength of 590 nm to give $\sin \delta$ values pixel-by-pixel. Nine overlapping images of the sample were collected using a 4x objective, which provides a 1360×1024 pixel image covering $1.581 \times 1.191 \text{ mm}$ area (approximate pixel size of $1.163 \times 1.163 \text{ }\mu\text{m}$). For each sample the overlapping images were then stitched together to create an image of the entire area of each sample. The image stitching was completed using the free program 'ImageJ' with the 'stitching' plugin. This program allows the user to manually place individual image frames into position. The frame positions can then be

CONFIDENTIAL

De Beers Technologies UK

computationally optimised and a stitched image / mosaic is generated along with a text file containing the optimized frame positions. De Beers Technologies UK have used a Matlab script, to stitch .ssf (data) files into an image using the optimized frame positions. A Matlab script has also been used to select and analyse appropriate rectangular, square or circular regions of interest from the .ssf data image.

A Sin δ image and a histogram for the entire NL719-06 sample are shown in **Figure 6**.

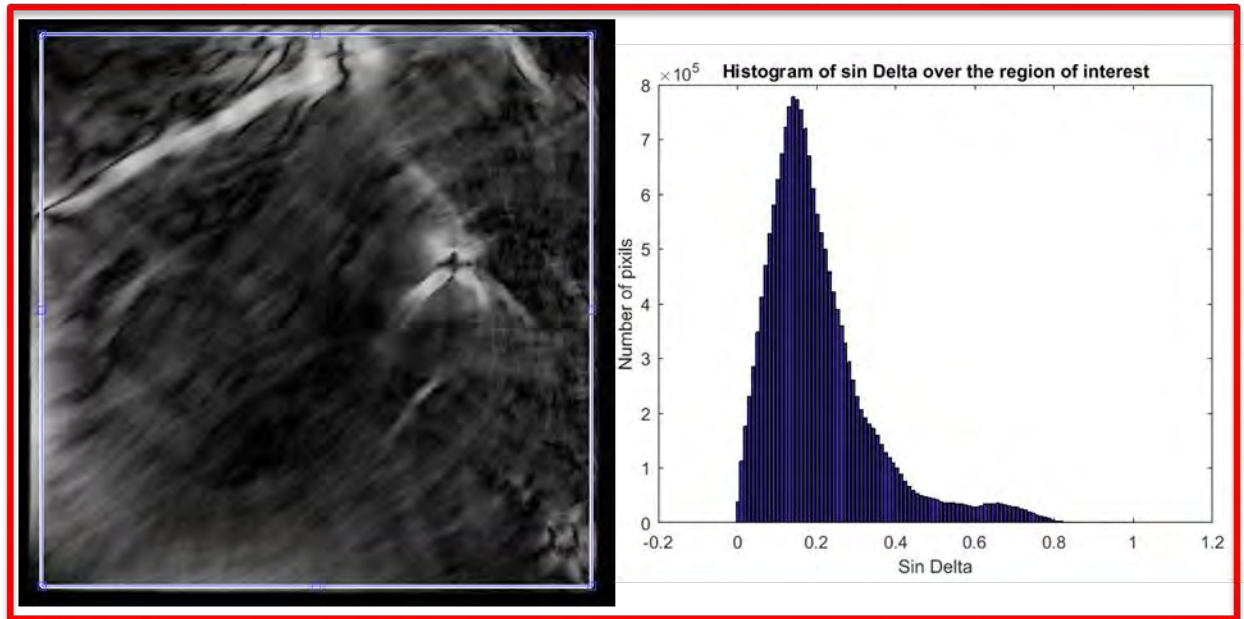


Figure 6: Sin δ Metripol image of the entire area of NL719-06 and histogram of the sin δ values for the region of the sample indicated by the white and light blue outlined box in the Metripol image.

Two square regions of the sample image were selected as illustrated in Figure 7. These areas had dimensions of 1.3 mm x 1.3 mm and 2.5 mm x 2.5 mm.

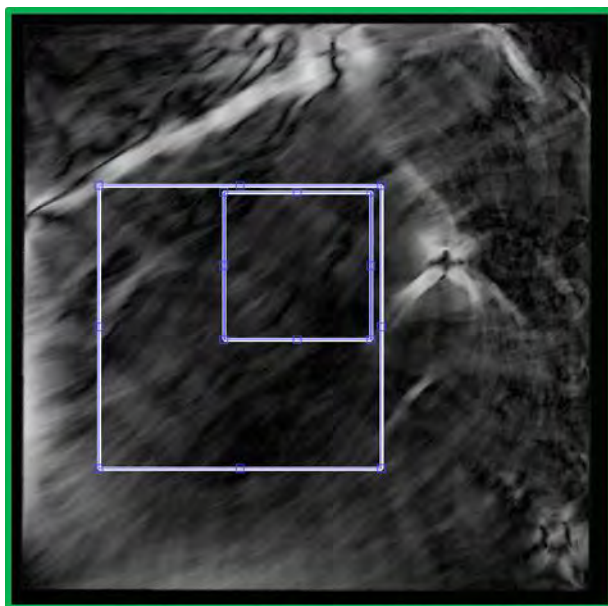


Figure 7: A Sin δ Metripol image of NL719-06 showing square regions of the sample selected for analysis of the distribution of sin δ values. The dimensions of these regions were 1.3 mm x 1.3 mm and 2.5 mm x 2.5 mm.

For the two selected areas, the maximum sin δ value was found (sin δ_{\max}), and hence δ_{\max} was calculated. Using the equation $\Delta n_{\max} = \delta_{\max} \lambda_{\text{meas}} / 2\pi L$, Δn_{\max} was then deduced. The results for NL719-06 are given in Table 5. This table also includes sin δ_{\max} and Δn_{\max} values after selection of the pixels with the 99% and 98% lowest values. Consideration of possible sources of measurement error indicates that the measured sin δ_{\max} values are within 0.02 of the true values and the Δn_{\max} values are within 3×10^{-6} of the true values.

Dimension of selected area (mm)	Sin δ_{\max} (for 100% of the analysed area)	Δn_{\max} (for 100% of the analysed area)	Sin δ_{\max} (for 99% of the analysed area)	Δn_{\max} (for 99% of the analysed area)	Sin δ_{\max} (for 98% of the analysed area)	Δn_{\max} (for 98% of the analysed area)
1.3 x 1.3	0.317	4.45×10^{-5}	0.246	3.43×10^{-5}	0.231	3.22×10^{-5}
2.5 x 2.5	0.568	8.34×10^{-5}	0.482	4.82×10^{-5}	0.302	4.24×10^{-5}

Table 5: sin δ_{\max} and Δn_{\max} values for selected regions over the NL719-06 plate. Values are given for 100% of the analysed area and for 99% and 98% of the analysed area.

9. CONCLUSION

This optical grade plate, produced by Ila Technologies Pte Ltd (previously known as Gemesis) and sold by Ila Technologies Pte Ltd in Singapore has optical absorption and luminescence characteristics consistent with that of nitrogen-doped single crystal CVD synthetic diamond that has not been annealed to high temperatures after growth. As all material produced by Ila Technologies Pte Ltd that we had previously studied had been annealed to high temperature after growth, this study was an interesting opportunity to develop a better understanding

CONFIDENTIAL

De Beers Technologies UK

of the characteristics of as-grown single crystal CVD synthetic diamond produced by Ila Technologies Pte Ltd.

The nitrogen concentration measured for this as-grown sample (130 ppb) is similar to that measured for annealed CVD synthetic diamond samples produced by Ila Technologies Pte Ltd. Although the specification of the plates supplied by Microwave Enterprises indicated 0.4 mm thickness, NL719-06 was found to be significantly thicker (0.68 mm).

Laser calorimetry measurements of the absorption coefficient at 1064 nm of NL719-06 were made at Laser Zentrum Hannover. The measured absorption coefficients for these three samples were found to be $0.0081(9) \text{ cm}^{-1}$.

Metripol images were recorded at Warwick University. Only first order birefringence was observed. Over the selected 1.3 mm x 1.3 mm areas $\sin \delta$ and $|\sin \delta|$ did not exceed 0.317(20). Over the selected 2.5 mm x 2.5 mm areas $\sin \delta$ and $|\sin \delta|$ did not exceed 0.568(20). For the chosen 1.3 mm x 1.3 mm areas, the maximum Δn value was $4.45(30) \times 10^{-5}$. For the 2.5 mm x 2.5 mm areas the maximum Δn was $8.34(30) \times 10^{-5}$.

Ila Technologies Pte Ltd

17 Tukang Innovation Drive, Singapore-618300

Tel : (65) 6555 5825 Fax : (65) 6555 5830

Co Reg No : 200516961K GST Reg No : M90359228L

SALES QUOTATIONTo : **Septem Asia**Quotation No : **Ila/QT/1516-124**Date: **23.10.2015**

S/N	DESCRIPTION	Item Code	MOQ	Unit Price (USD)
1	Lab Grown Diamond Plates	2PCVD404005N	-	350.00
2	Lab Grown Diamond Plates	2PCVD505005N	-	450.00
3	Lab grown CVD Polycrystalline Diamond plates 5mm x 5mm x 0.50 mm, est. TC>1800W/mK Ra <50nm, double side polished	PCD5050-0.5mm	-	335.00
Sub Total				

Bank/Freight/
Ins Charges

GST @ 0%

Total - US\$

\$

-

Terms and ConditionPayment Term: : **30 Days**Delivery Date : **8-10 weeks**Trade Term : **Ex Work (Ila Tech)**Validity : **Quote is valid for 30 days from date of issue**

Authorized Signature

Ila Technologies Pte Ltd

17 Tukang Innovation Drive, Singapore-618300

Tel : (65) 6555 5825 Fax : (65) 6555 5830

Co Reg No : 200516961K GST Reg No : M90359228L

SALES QUOTATIONTo : **Septem Asia**

Quotation No : Ila/QT/1516-124

Date: 23.10.2015

S/N	DESCRIPTION	Item Code	MOQ	Unit Price (USD)
1	Lab Grown Diamond Plates	2PCVD404005N	3	350.00
2	Lab Grown Diamond Plates	2PCVD505005N	3	450.00
Sub Total			6.0	\$ 2,400.00
			Bank/Freight/ Ins Charges	
			GST @ 0%	\$ 168.00
			Total - US\$	\$ 2,568.00

Terms and Condition

Payment Term: : 30 Days
 Delivery Date : 8-10 weeks
 Trade Term : Ex Work (Ila Tech)
 Validity : Quote is valid for 30 days from date of issue



Authorised Signature

RSC-01 F2

Rev 0





IIa TECHNOLOGIES PTE LTD
17, Tukang Innovation Drive, Singapore 618300

Delivery order

Deliverto:
Septem Asia
Singapore

Delivery date :	08.01.2016
Invoice no :	IIa/INV/1516-0241
D.O. number :	IIa/DO/1516-0241
Customer code :	GSPL/CUS-000091

S/N	Description	Qty	UOM	carats
1	Lab Grown Diamond Plates Item Code: 2PCVD404005N	3	Pcs	0.49
2	Lab Grown Diamond Plates Item Code:2PCVD505005N	3	Pcs	0.87
Totals:		6		1.36


 8/1 / 2016

 Authorised Signature



Ila TECHNOLOGIES PTE LTD
17, Tukang Innovation Drive, Singapore 618300

Tax Invoice

Bill to:

Septem Asia

Singapore

Exchange Rate : 1.4139

Country of Origin : Singapore

Invoice date	Invoice no	D.O. number	Customer code	Payment terms
08.01.2016	Ila/INV/1516-0241	Ila/DO/1516-0241	GSPL/CUS-000091	30 Days

Sales details						
S/N	Description	Qty	UOM	carats	Unit Price	Amount & breakups
1	Lab Grown Diamond Plates Item Code: 2PCVD404005N	3	Pcs	0.49	350	\$ 1,050.00
1	Lab Grown Diamond Plates Item Code: 2PCVD505005N	3	Pcs	0.87	450	\$ 1,350.00
Totals:		6		1.36		\$ 2,400.00

Remarks:	
a. Delivery term:	Local
b. Port of Discharge:	NA
c. Port of Destination:	NA
d. Forwarding Agent:	Self Collection
d. Insured By:	Na

Bank/Freight/Ins Charges	\$ -
Discount	\$ -
GST 7%	\$ 168.00
Total(USD)	\$ 2,568.00

Net amount (SGD)	\$ 3,393.36
GST (SGD)	\$ 237.54
Final amount (SGD)	\$ 3,630.90

Bank details if payment is made by Cheque/cas:	
Beneficiary:	Ila TECHNOLOGIES PTE LTD
Bank Name:	UOB(USD)
AccountNo:	450-902-286-5
SWIFT Code:	UOVBSGSG

8/1/2016

Authorised Signature

The lab grown diamonds herein invoiced have been purchased from legitimate sources and is not involved in funding conflicts and in compliance with United Nations resolutions. The Seller hereby guarantees that these diamonds are conflict-free, based on personal knowledge and/or written guarantees provided by the suppliers of these diamonds.

From: Lin Lin <lilin@2a-tech.com.sg>
Sent: Friday, 8 January, 2016 9:02 AM
To: pascal.pierra@septem.asia
Subject: RE: Interested to purchase Diamond Samples for a Thermal Management application Solution

Dear Pascal,

In order to create the invoice for you, we need some details:

Company name:
Address:
Contact person:
Tel/hp:

And also, could you let me know approximately when will you arrive today :)

See you soon.

Best Regards,

Lin Lin
Technical Marketing Engineer

Ila Technologies Pte Ltd
17 Tukang Innovation Drive,
Singapore 618300
Mobile: +65 8180 9528
Tel: +65 6555 5825 ext 163
Email: lilin@2a-tech.com.sg
Website: <http://2atechnologies.com/>
Skype ID: linl0016

-----Original Message-----

From: pascal.pierra@septem.asia [mailto:pascal.pierra@septem.asia]
Sent: 5 January, 2016 16:23
To: Lin Lin
Subject: RE: Interested to purchase Diamond Samples for a Thermal Management application Solution

Ok, great! I will come to pick this up on Friday.

Thank you,
Pascal

On 2016-01-05 16:10, Lin Lin wrote:

> Dear Pascal,
>
> As scheduled, you can come for collection on this coming Friday :)
>
> Address:
> 17 Tukang Innovation Drive,
> Singapore 618300
>
> Best Regards,
>
> Lin Lin
> Technical Marketing Engineer
>
> Ila Technologies Pte Ltd
> 17 Tukang Innovation Drive,
> Singapore 618300
> Mobile: +65 8180 9528
> Tel: +65 6555 5825 ext 163

> Email: llin@2a-tech.com.sg
> Website: <http://2atechnologies.com/>
> Skype ID: linl0016
>
>
> -----Original Message-----
> From: pascal.pierra@septem.asia [mailto:pascal.pierra@septem.asia]
> Sent: 5 January, 2016 11:05
> To: Lin Lin
> Subject: RE: Interested to purchase Diamond Samples for a Thermal
> Management application Solution
>
> Good morning Lin Lin
>
> Happy new year for 2016!
> Any update on the delivery?
>
> Thank you,
> Pascal
>
>
>
> On 2015-11-17 16:21, Lin Lin wrote:
>> Dear Pascal,
>>
>> The projected delivery date will be Jan 08, 2016.
>>
>> Please let us know the preferred delivery method: we can mail the
>> plates to you (mailing cost will be billed in the final invoice), or
>> you may self-collect at:
>>
>> Ila Technologies Pte Ltd
>>
>> 17 Tukang Innovation Drive,
>>
>> Singapore 618300
>>
>> I will send you a notice once the goods are ready J
>>
>> Best Regards,
>>
>> Lin Lin
>>
>> Technical Marketing Engineer
>>
>> Ila Technologies Pte Ltd
>>
>> 17 Tukang Innovation Drive,
>>
>> Singapore 618300
>>
>> Mobile: +65 8180 9528
>>
>> Tel: +65 6555 5825 ext 163
>>
>> Email: llin@2a-tech.com.sg
>>
>> Website: <http://2atechnologies.com/>
>>
>> Skype ID: linl0016
>>
>> -----Original Message-----
>> From: pascal.pierra@septem.asia [mailto:pascal.pierra@septem.asia]
>> Sent: 13 November, 2015 10:14

>> To: Lin Lin
>> Subject: RE: Interested to purchase Diamond Samples for a Thermal
>> Management application Solution
>>
>> Good morning Lin Lin
>>
>> Please find the signed quotation attached.
>>
>> Thank you very much,
>>
>> Pascal
>>
>> On 2015-11-12 14:44, Lin Lin wrote:
>>
>>> Dear Pascal,
>>
>>>
>>
>>> Pls find attached quote as per request :)
>>
>>>
>>
>>> Best Regards,
>>
>>>
>>
>>> Lin Lin
>>
>>> Technical Marketing Engineer
>>
>>>
>>
>>> Ila Technologies Pte Ltd
>>
>>> 17 Tukang Innovation Drive,
>>
>>> Singapore 618300
>>
>>> Mobile: +65 8180 9528
>>
>>> Tel: +65 6555 5825 ext 163
>>
>>> Email: llin@2a-tech.com.sg
>>
>>> Website: <http://2atechnologies.com/> [1]
>>
>>> Skype ID: linl0016
>>
>>>
>>
>>>
>>
>>> -----Original Message-----
>>
>>> From: pascal.pierra@septem.asia [mailto:pascal.pierra@septem.asia]
>>
>>> Sent: 12 November, 2015 11:32
>>
>>> To: Lin Lin
>>
>>> Subject: RE: Interested to purchase Diamond Samples for a Thermal
>>
>>> Management application Solution
>>
>>>

>>
 >>> Hi Lin Lin
 >>
 >>>
 >>
 >>> I am in Singapore so please add the 7% GST.
 >>
 >>> My address is a personal address :
 >>
 >>> 15 St Thomas Walk #22-17 Singapore(238143)
 >>
 >>>
 >>
 >>> Thank you,
 >>
 >>> Pascal
 >>
 >>>
 >>
 >>> On 2015-11-12 08:58, Lin Lin wrote:
 >>
 >>>> Dear Pascal,
 >>
 >>>>
 >>
 >>>> May I know where your company locates? Because if your company is
 >>
 >>>> based in SG, there will be additional 7% GST involved.
 >>
 >>>>
 >>
 >>>> Best Regards,
 >>
 >>>>
 >>
 >>>> Lin Lin
 >>
 >>>> Technical Marketing Engineer
 >>
 >>>>
 >>
 >>>> Ila Technologies Pte Ltd
 >>
 >>>> 17 Tukang Innovation Drive,
 >>
 >>>> Singapore 618300
 >>
 >>>> Mobile: +65 8180 9528
 >>
 >>>> Tel: +65 6555 5825 ext 163
 >>
 >>>> Email: llin@2a-tech.com.sg
 >>
 >>>> Website: <http://2atechnologies.com/> [1]
 >>
 >>>> Skype ID: linl0016
 >>
 >>>>
 >>
 >>>> -----Original Message-----
 >>
 >>>> From: pascal.pierra@septem.asia [mailto:pascal.pierra@septem.asia]
 >>
 >>>> Sent: 12 November, 2015 08:35
 >>

>>>> To: Lin Lin
>>
>>>> Subject: RE: Interested to purchase Diamond Samples for a Thermal
>>
>>>> Management application Solution
>>
>>>>
>>
>>>> Sorry I meant a quotation, not an invoice.
>>
>>>>
>>
>>>> On 2015-11-12 08:33, pascal.pierra@septem.asia wrote:
>>
>>>>> Hi Lin Lin,
>>
>>>>>
>>
>>>>> Can you please send me a revised invoice reflecting the exact
>>
>>>>> quantity I am purchasing?
>>
>>>>> Then I will sign it and return it to you.
>>
>>>>>
>>
>>>>> Thank you,
>>
>>>>> Pascal
>>
>>>>>
>>
>>>>>
>>
>>>>> On 2015-11-11 15:43, Lin Lin wrote:
>>
>>>>>> Dear Pascal,
>>
>>>>>>
>>
>>>>>> Pls send the signed quotation back to us. Or you can also send us
>>
>>
>>>>>> an official purchase order to initiate the buying process. thank
>>
>>>>>> you very much.
>>
>>>>>>
>>
>>>>>> Best Regards,
>>
>>>>>>
>>
>>>>>> Lin Lin
>>
>>>>>> Technical Marketing Engineer
>>
>>>>>>
>>
>>>>>> Ila Technologies Pte Ltd
>>
>>>>>> 17 Tukang Innovation Drive,
>>
>>>>>> Singapore 618300
>>

>>>>> Mobile: +65 8180 9528
>>
>>>>> Tel: +65 6555 5825 ext 163
>>
>>>>> Email: llin@2a-tech.com.sg
>>
>>>>> Website: http://2atechnologies.com/ [1] Skype ID: linl0016
>>
>>>>>
>>
>>>>>
>>
>>>>> -----Original Message-----
>>
>>>>> From: pascal.pierra@septem.asia
>> [mailto:pascal.pierra@septem.asia]
>>
>>>>> Sent: 11 November, 2015 15:41
>>
>>>>> To: Lin Lin
>>
>>>>> Subject: RE: Interested to purchase Diamond Samples for a Thermal
>>
>>
>>>>> Management application Solution
>>
>>>>>
>>
>>>>> Hi Lin Lin,
>>
>>>>>
>>
>>>>> I understand, do you need me to sign a quotation to proceed with
>>
>>>>> the order or is this email confirmation good enough?
>>
>>>>>
>>
>>>>> Thank you,
>>
>>>>> Pascal
>>
>>>>>
>>
>>>>> On 2015-11-11 12:56, Lin Lin wrote:
>>
>>>>> Dear Pascal,
>>
>>>>>
>>
>>>>> For a qty of 3pcs, the price will not change. It will stay as
>> per
>>
>>>>> quoted.
>>
>>>>>
>>
>>>>> Lead time is standard: 8 weeks after receiving PO, as it is the
>>
>>>>> nature of the growth process.
>>
>>>>>
>>
>>>>> Usually our dimensional tolerance is +0.2/-0.0mm. please let me
>>

>>>>>> know if otherwise. :) thank you.

>>

>>>>>>

>>

>>>>>> Best Regards,

>>

>>>>>>

>>

>>>>>> Lin Lin

>>

>>>>>> Technical Marketing Engineer

>>

>>>>>>

>>

>>>>>> Ila Technologies Pte Ltd

>>

>>>>>> 17 Tukang Innovation Drive,

>>

>>>>>> Singapore 618300

>>

>>>>>> Mobile: +65 8180 9528

>>

>>>>>> Tel: +65 6555 5825 ext 163

>>

>>>>>> Email: llin@2a-tech.com.sg

>>

>>>>>> Website: <http://2atechnologies.com/> [1] Skype ID: linl0016

>>

>>>>>>

>>

>>>>>>

>>

>>>>>> -----Original Message-----

>>

>>>>>> From: pascal.pierra@septem.asia

>> [mailto:pascal.pierra@septem.asia]

>>

>>>>>> Sent: 11 November, 2015 12:54

>>

>>>>>> To: Lin Lin

>>

>>>>>> Subject: RE: Interested to purchase Diamond Samples for a

>> Thermal

>>

>>>>>> Management application Solution

>>

>>>>>>

>>

>>>>>> Good afternoon Lin Lin,

>>

>>>>>>

>>

>>>>>> I now have confirmation from my client to purchase 3 each of

>>

>>>>>> 2PCVD404005N and 2PCVD505005N.

>>

>>>>>> Can you please send me your best quotation and lead time for

>> this

>>

>>>>>> order so we can proceed?

>>

>>>>>>

>>

>>>>>> Thank you,

>>

>>>>>>> Pascal
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>> On 2015-10-27 10:12, Lin Lin wrote:
>>
>>>>>>> Dear Pascal,
>>
>>>>>>>
>>
>>>>>>> Oops I have been waiting for your email for days... last week I
>>
>>
>>>>>>> tried many times sending you emails, but all had been bounced
>>
>>>>>>> back.
>>
>>>>>>> J
>>
>>>>>>>
>>
>>>>>>> I hope now is ok.
>>
>>>>>>>
>>
>>>>>>> pls find attached Quote as per request.
>>
>>>>>>>
>>
>>>>>>> 4x4x0.5 single crystal
>>
>>>>>>>
>>
>>>>>>> 5x5x0.5 single crystal
>>
>>>>>>>
>>
>>>>>>> 5x5x0.5 polycrystalline, thermal conductivity > 1800@/mK
>>
>>>>>>>
>>
>>>>>>> Let me know if you need any clarification :)
>>
>>>>>>>
>>
>>>>>>> Best Regards,
>>
>>>>>>>
>>
>>>>>>> Lin Lin
>>
>>>>>>>
>>
>>>>>>> Technical Marketing Engineer
>>
>>>>>>>
>>
>>>>>>> Ila Technologies Pte Ltd
>>
>>>>>>>
>>
>>>>>>> 17 Tukang Innovation Drive,
>>

>>>>>>>
>>
>>>>>>> Singapore 618300
>>
>>>>>>>
>>
>>>>>>> Mobile: +65 8180 9528
>>
>>>>>>>
>>
>>>>>>> Tel: +65 6555 5825 ext 163
>>
>>>>>>>
>>
>>>>>>> Email: llin@2a-tech.com.sg
>>
>>>>>>>
>>
>>>>>>> Website: <http://2atechnologies.com/> [1]
>>
>>>>>>>
>>
>>>>>>> Skype ID: linl0016
>>
>>>>>>>
>>
>>>>>>> -----Original Message-----
>>
>>>>>>> From: pascal.pierra@septem.asia
>>
>>>>>>> [mailto:pascal.pierra@septem.asia]
>>
>>>>>>> Sent: 27 October, 2015 10:11
>>
>>>>>>> To: Lin Lin
>>
>>>>>>> Subject: RE: Interested to purchase Diamond Samples for a
>> Thermal
>>
>>>>>>> Management application Solution
>>
>>>>>>>
>>
>>>>>>> Hi Lin
>>
>>>>>>>
>>
>>>>>>> I would like to follow up with you on the responses I sent you
>> on
>>
>>>>>>> Oct 17th.
>>
>>>>>>>
>>
>>>>>>> Anything else you need from me?
>>
>>>>>>>
>>
>>>>>>> Thank you,
>>
>>>>>>>
>>
>>>>>>> Pascal
>>
>>>>>>>

>>
>>>>>>> Note : Maybe you replied to me earlier. I had some issue with
>> my
>>
>>>>>>> email server.
>>
>>>>>>>
>>
>>>>>>> On 2015-10-17 13:52, pascal.pierra@septem.asia wrote:
>>
>>>>>>>
>>
>>>>>>> Good morning Lin,
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>> Thank you for your quick reply. Please see my answers below :
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>> · What will be the lateral dimension needed? (our plates
>> range
>>
>>>>>>> from
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>> 2mm x 2mm up to 7mm x 7mm)
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>> [Pascal] Heat spots are about 0.5x0.5 mm so plates in the
>>
>>>>>>> dimensions
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>> 3-5 mm range would be suitable for initial trials
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>> · Thickness: minimum we can polish and handle is 0.4mm for
>> 5x5mm
>>
>>>>>>> and

>>
>>>>>>>
>>
>>>>>>> below, 0.5mm for size above 5x5mm. usually 0.4-0.5 is
>>
>>>>>>> sufficient,
>>
>>>>>>>
>>
>>>>>>> cheaper and easier to grow. so pls let me know your
>> preferences.
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>> [Pascal] 0.5 mm would ideal for initial trials
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>> · Crystal orientation: top/bottom (100)-oriented, 4 edges
>>
>>>>>>>
>>
>>>>>>> (110)-oriented. (would it be ok for you?)
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>> [Pascal] yes
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>> · Any requirement on the impurities level?
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>>
>>
>>>>>>> [Pascal] Ideally want as high a thermal conductivity as
>> possible
>>
>>>>>>> e.g.
>>
>>>>>>>
>>
>>>>>>> >1900W/mK so impurities consistent with that
>>
>>>>>>>
>>

>>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>> o We have optical grade plates, nitrogen content range from
 >> tens
 >>
 >>>>>>>> to
 >>
 >>>>>>>>
 >>
 >>>>>>>> hundreds of ppb. Some Si-related color centers detectable.
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>> o Also we produce high quality electronic grade plates, with
 >> [N]
 >>
 >>>>>>>>
 >>
 >>>>>>>> <1ppb. No other traceable impurities. Minimum structural
 >>
 >>>>>>>> dislocations,
 >>
 >>>>>>>>
 >>
 >>>>>>>> although in my opinion its specs will be an overkill for TM
 >>
 >>>>>>>>
 >>
 >>>>>>>> applications. J
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>> · Thermal conductivity: will be both above 2000W/mK for
 >> optical
 >>
 >>>>>>>> and
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>> [Pascal] Agreed. Optical grade sounds right.
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>

>>>>>>>>
 >>
 >>>>>>>> · Typical lead time 8-10 weeks regardless of qty, as this is
 >> the
 >>
 >>>>>>>>
 >>
 >>>>>>>> standard production cycle will require.
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>> [Pascal] okay
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>> For polycrystalline diamonds (PCD), the thermal performance
 >> will
 >>
 >>>>>>>> not
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>> be as good as single crystal, but we can produce PCD with
 >>
 >>>>>>>> thermal
 >>
 >>>>>>>>
 >>
 >>>>>>>> conductivity > 1800@/mK. Appearance will be brownish disk,
 >>
 >>>>>>>>
 >>
 >>>>>>>> single/double side polishing with Ra < 10nm.
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>> Please also let me know the preferred size for PCD.
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>>
 >>
 >>>>>>>> [Pascal] I would be interested in similar to the single
 >> crystal
 >>
 >>>>>>>> for
 >>
 >>>>>>>>
 >>

>>>>>>>> comparison – e.g. 5x5x0.5 mm

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>> Thank you,

>>

>>>>>>>>

>>

>>>>>>>> Pascal

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>> On 2015-10-15 12:55, Lin Lin wrote:

>>

>>>>>>>>

>>

>>>>>>>> Dear Pascal,

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>> Thank you for your interest in Ila Technologies.

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>> In order to understand your inquiry better, I'd like to ask a

>>

>>

>>>>>>>> few

>>

>>>>>>>> more

>>

>>>>>>>>

>>

>>>>>>>> details from you :).

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>>

>>

>>>>>>>> For single crystal thermal management applications:
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> · What will be the lateral dimension needed? (our plates
>> range
>>
>>>>>>>> from
>>
>>>>>>>>
>>
>>>>>>>> 2mm x 2mm up to 7mm x 7mm)
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> · Thickness: minimum we can polish and handle is 0.4mm for
>>
>>>>>>>> 5x5mm
>>
>>>>>>>> and
>>
>>>>>>>>
>>
>>>>>>>> below, 0.5mm for size above 5x5mm. usually 0.4-0.5 is
>>
>>>>>>>> sufficient,
>>
>>>>>>>>
>>
>>>>>>>> cheaper and easier to grow. so pls let me know your
>> preferences.
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> · Crystal orientation: top/bottom (100)-oriented, 4 edges
>>
>>>>>>>>
>>
>>>>>>>> (110)-oriented. (would it be ok for you?)
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> · Any requirement on the impurities level?
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>

>>
>>>>>>>> o We have optical grade plates, nitrogen content range from
>>
>>>>>>>> tens to
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> hundreds of ppb. Some Si-related color centers detectable.
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> o Also we produce high quality electronic grade plates, with
>>
>>>>>>>> [N] <
>>
>>>>>>>>
>>
>>>>>>>> 1ppb. No other traceable impurities. Minimum structural
>>
>>>>>>>> dislocations,
>>
>>>>>>>>
>>
>>>>>>>> although in my opinion its specs will be an overkill for TM
>>
>>>>>>>>
>>
>>>>>>>> applications. J
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> · Thermal conductivity: will be both above 2000W/mK for
>> optical
>>
>>>>>>>> and
>>
>>>>>>>>
>>
>>>>>>>> electronic grade plates.
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> · Typical lead time 8-10 weeks regardless of qty, as this is
>>
>>
>>>>>>>> the
>>
>>>>>>>>
>>
>>>>>>>> standard production cycle will require.
>>

>>>>>>>>
>>
>>>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>> For polycrystalline diamonds (PCD), the thermal performance
>>
>>>>>>>>> will
>>
>>>>>>>> not
>>
>>>>>>>>
>>
>>>>>>>>> be as good as single crystal, but we can produce PCD with
>>
>>>>>>>>> thermal
>>
>>>>>>>>
>>
>>>>>>>>> conductivity > 1800@/mK. Appearance will be brownish disk,
>>
>>>>>>>>
>>
>>>>>>>>> single/double side polishing with Ra < 10nm.
>>
>>>>>>>>
>>
>>>>>>>>>
>>
>>>>>>>>> Please also let me know the preferred size for PCD.
>>
>>>>>>>>
>>
>>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>> Looking forward to your reply. Thank you.
>>
>>>>>>>>
>>
>>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>> Best Regards,
>>
>>>>>>>>
>>
>>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>> Lin Lin
>>
>>>>>>>>
>>
>>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>> Technical Marketing Engineer

>>
>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>
>>
>>>>>>>> Ila Technologies Pte Ltd
>>
>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>
>>
>>>>>>>> 17 Tukang Innovation Drive,
>>
>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>
>>
>>>>>>>> Singapore 618300
>>
>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>
>>
>>>>>>>> Mobile: +65 8180 9528
>>
>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>
>>
>>>>>>>> Tel: +65 6555 5825 ext 163
>>
>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>
>>
>>>>>>>> Email: llin@2a-tech.com.sg
>>
>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>
>>
>>>>>>>> Website: <http://2atechnologies.com/> [1] [1]
>>
>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>
>>
>>>>>>>> Skype ID: llin0016
>>

>>>>>>>>
>>
>>>>>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>>>>> -----Original Message-----
>>
>>>>>>>>
>>
>>>>>>>>>>>> From: pascal.pierra@septem.asia
>>
>>>>>>>>>>>> [mailto:pascal.pierra@septem.asia]
>>
>>>>>>>>
>>
>>>>>>>>>>>> Sent: 14 October, 2015 20:23
>>
>>>>>>>>
>>
>>>>>>>>>>>> To: Info; Lin Lin
>>
>>>>>>>>
>>
>>>>>>>>>>>> Subject: Interested to purchase Diamond Samples for a Thermal
>>
>>
>>>>>>>>
>>
>>>>>>>>>>>> Management application Solution
>>
>>>>>>>>
>>
>>>>>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>>>>> Good morning,
>>
>>>>>>>>
>>
>>>>>>>>>>>>
>>
>>>>>>>>>>>> I am in charge of business development for Septem Asia, an
>>
>>>>>>>>>>>> Engineering
>>
>>>>>>>>
>>
>>>>>>>>>>>> consulting company trying to develop a solution for one of
>> our
>>
>>>>>>>>
>>
>>>>>>>>>>>> customers.
>>
>>>>>>>>
>>
>>>>>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>>>>> Could you please provide me a quote to purchase diamond

>> samples
>>
>>>>>>>> as
>>
>>>>>>>>
>>
>>>>>>>> well as your best lead time.
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> The targeted end usage is for a specific semiconductor
>> thermal
>>
>>>>>>>>
>>
>>>>>>>> management application.
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> Single crystal diamond materials close or around the
>> following
>>
>>>>>>>> would
>>
>>>>>>>>
>>
>>>>>>>> be of interest to me:
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> 1. No of parts for initial trials (10-20)
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> 2. Double side polish (Ra<10 nm)
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> 3. Crystal orientation – this is not paramount to the
>>
>>>>>>>> application
>>
>>>>>>>>
>>
>>>>>>>>

>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> but I would like to know what it is
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> 4. Thickness 0.5-1 mm. For initial trials I probably would
>>
>>>>>>>> prefer
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> the thicker side depending on price and availability
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> I see reference on you website for poly-crystalline materials
>>
>>
>>>>>>>> as
>>
>>>>>>>> well.
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> If available could you give me similar quote for equivalent
>>
>>>>>>>> poly
>>
>>>>>>>>
>>
>>>>>>>> diamond. I'm looking for high thermal conductivity.
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>> I am looking forward to your reply.
>>
>>>>>>>>

>>
>>>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>> Best Regards,
>>
>>>>>>>>
>>
>>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>> Pascal Pierra
>>
>>>>>>>>
>>
>>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>> Pascal Pierra | Director, Business Development |
>>
>>>>>>>>
>>
>>>>>>>>> pascal.pierra@septem.asia | Septem Asia
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>
>>
>>>>>>>>> Links:
>>
>>>>>>>>> -----
>>
>>>>>>>>> [1] <http://2atechnologies.com/> [1]
>>
>>>>>>> Hi
>>
>> Links:
>> -----
>> [1] <http://2atechnologies.com/>

From: pascal.pierra@septem.asia
Sent: Friday, 8 January, 2016 3:35 PM
To: Lin Lin
Subject: RE: Interested to purchase Diamond Samples for a Thermal Management application Solution

Good afternoon Lin Lin,

Please see details below :

Company name: Septem Asia
Address: 15 St Thomas Walk #22-17
Contact person: Mr Pascal Pierra
Tel/hp: 9101 1980

Best Regards,
Pascal



DHL Origin Copy - Do not put in the package

ARCHIVE DOC		WPX		EXPRESS	
Do not attach to package!				Origin:	
From: SEPTIM ASIA PASCAL PIERRA 15 St Thomas Walk #22-17 SINGAPORE				SIN	
SINGAPORE 238143				Ph: 6591011980	
To: De Beers UK John Gibson Belmont Road Maldenhead				Contact: Ph: 0162877 1234	
SL6 6JW MAIDENHEAD					
United Kingdom					
GB-LHR-HSC					
C-IMP		Day		Time	
Ref: SYNTHETIC SAMPLES		Shipment Weight 0.5 Kgs		Pieces:	
Account No: IMPEXPONT		Date: 2016-01-13		1	
DHL standard Terms and Conditions apply. Warsaw convention may also apply. Shipment may be carried via intermediate stopping places DHL deems appropriate. Content: SYNTHETIC SAMPLES					
WAYBILL 13 6691 6876					
Product : P EXPRESS WORLDWIDE					
Service :					
Duty & Taxes Acc : : 0.00 SGD					
Insurance Value : 100.00 SGD					
Declared Value :					
Terms of Trade :					
License plates of Pieces in :					
-(U)D01 4600 0027 6577 5063					

(Archive Page 1)



invoice
Shipment Receipt

Shipment From

SEPTEN ASIA
PASCAL PIERRA
15 St Thomas Walk #22-17
SINGAPORE

SINGAPORE

Singapore 238143
6591011980

Shipment To

De Beers UK
John Gibson
Belmont Road
Maidenhead

MAIDENHEAD

United Kingdom SL6 6JW
01628771234 - 4682

Shipment Details

Shipment date : 13-Jan-2016
Waybill Number : 1366916876
Service Type : EXPRESS WORLDWIDE
Packaging Type : Express Flyer
Number Of Pieces : 1
Total Weight : 0.5 Kgs
Dimensional : 0.0 Kgs
Chargeable : 0.5 Kgs
Insured Amount :

International Information

Declared Value 100.00 SGD
Duties And Taxes DTU
Non Document Status
Non Document

Billing Information

Import Express : IMPEXPONL

Reference Information

Reference : SYNTHETIC SAMPLES

Pickup Booking Reference

Description Of Contents

SYNTHETIC SAMPLES

CHIEF H1366916876
DTI-E2 ENTRY ACCEPTANCE ADVICE
** REPRINT ** at 14:35
on 14/07/2016
Entry: 690-152289B-15/01/2016 version 01
Route 6 at 690 status 00 for page 1

ENTRY ACCEPTANCE DETAILS
Entry accepted 15/01/2016 at 04:49 Office 690
Declarant Id Submitting TURN
Declarant reference 1366916876
CONSIGNMENT DETAILS
Decln UCR 6GB751812341004-1366916876 part
MRN
Master UCR Inventory system
Location GBLHRDHS Total packages
ENTRY VALUE DETAILS
Invoice total Amount from Currency at Exchange Rate
47.30 SGD 2.11380000
ENTRY REVENUE TOTALS
Tax Type Total Amount MOP Tax Type Total Amount MOP
B00 9.46 F
Total deferred revenue 9.46
Total immediate revenue 0.00
Total revenue payable 9.46
ITEM DETAILS
Item 01
Item Price 47.30 VAT value 47.30
Customs value 47.30 Licence value 47.30
Stat value
Tax Type Total Amount MOP Tax Type Total Amount MOP
B00 9.46 F
End of Report

1366916876
** REPRINT ** Supplementary Declaration
1 IMY EPU 690 ENO 152289B DOE 15012016
3 01/01
2 SEPTMASIA
15 ST THOMAS WALK 22-17
SINGAPORE 5 01 6 1 7 1366916876
238143 SG
8 GBN11111170000 15a SG 18
21 BCS2108 GB
22 SGD 100.00
DE BEERS UK
BELMONT ROAD
MAIDENHEAD 25 26
SL6 6JW GB
14 GB751812341004 I 30 GBLHRDHS

31 Description of goods 32 1 33 C2100006 00
SYNTHETIC SAMPLES
34a SG 35 36 100
Packages Number/Kind/Marks
1/PK/1366916876 37 4000006 38 1 39
40
41 42 100.00 43
45 B0000
46
44 Additional information AG001 DR=493897081000 - GEN46
Document/Certificate/Authorisation 9DCR - 6GB751812341004-1366916876

47A B C D E 48 A8151025 49
B00 S VAT 9.46 F
Box B

c88(6)

Rte: 6

Org: SIN Dest: LHR
Page 1

54 Place & date
EMA 14-07-16
Signature & name of
Declarant/representative
DP871 DHL D BKUS

EXCELLENCE. SIMPLY DELIVERED.



19 July 2016

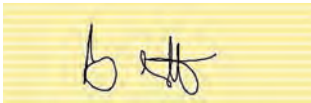
Dear Customer,

This is a proof of delivery / statement of final status for the shipment with waybill number 1366916876.

Thank you for choosing DHL Express.

www.dhl.com

Your shipment 1366916876 was delivered on 18 January 2016 at 09.32

Signed	A SCOTT	Receiver Name	DE BEERS UK
Signature		Receiver Address	BELMONT ROAD MAIDENHEAD MAIDENHEAD UNITED KINGDOM
Shipment Status	Delivered	Piece ID(s)	JD014600002765775063

Additional Shipment Details

Service	EXPRESS WORLDWIDE nondoc	Shipper Name	SEPTEM ASIA
Picked Up	13 January 2016 at 20.39	Shipper Address	15 ST THOMAS WALK #22-17 SINGAPORE SINGAPORE SINGAPORE
Number of Pieces	1	Shipper Reference	SYNTHETIC SAMPLES
Weight	1.10 lbs / 0.50 kg		
Contents	SYNTHETIC SAMPLES		

This is the Exhibit marked “SFW-43”

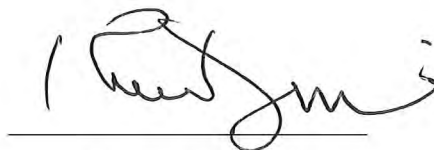
referred to in the Affidavit of

Susan Jane Fletcher Watts

affirmed in the United Kingdom

on this 27 day of March 2018

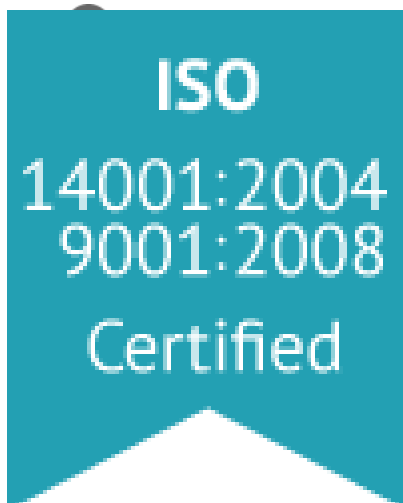
Before me

A handwritten signature in black ink, appearing to read 'Richard Griffiths', written over a horizontal line.

A NOTARY PUBLIC

RICHARD GARETH GRIFFITHS
Solicitor & Notary Public
Downend Lodge
Chieveley
ENGLAND RG20 8TN

Go to Top



- [Home](#)
- [About Us](#)
- [Technology](#)
- [Products And Applications](#)
- [Sustainability](#)
- [Contact Us](#)
- [News Links](#)

Ila Technologies Pte. Ltd. 

- [Home](#)
- [About Us](#)
 - [Our History](#)
 - [Executive Team](#)
 - [Board of Directors](#)
- [Technology](#)
 - [Technology Overview](#)
 - [Technology Value Chain](#)
- [Products and Applications](#)
 - [IIa Diamond Properties](#)
 - [Specialised Applications](#)
- [Sustainability](#)
 - [What is Sustainability?](#)
 - [IIa Technologies and Sustainability](#)
- [Contact Us](#)
- [News Links](#)

Ila Technologies Achieves Certification for ISO 9001:2008 and ISO 14001:2004

By [admin](#)[September 18, 2014](#)

0

Singapore, 18 September 2014 – [Ila Technologies](#), a leading high quality diamond grower, is pleased to announce that it has been certified as having met the international standards of ISO 14001:2004, an Environmental Management Standard and ISO 9001:2008, a Quality Management Standard.

As a Singapore-based company, Ila Technologies has always had access to a robust governing framework that encourages a transparent business environment, safeguarded by a rigorous & impartial public audit process. This has been the backbone of the company since its inception in 2005. Ila Technologies has always maintained the highest standards of corporate governance & business processes, supported by Singapore's strong regulatory frameworks and guidelines from financial institutions that have supported the company since inception. One of the few diamond growers to meet both ISO 9001:2008 and ISO 14001:2004 certification requirements, Ila Technologies has demonstrated its commitment to implement quality management systems designed such that it responds effectively to every client's needs, while abiding to the prescribed environmental responsibility.

Commenting on the certifications, Mr. Vishal Mehta, CEO of Ila Technologies said, "The ISO certification validates our commitment to service quality and sustainability. The cohesive objective within Ila Technologies is to attain the highest levels of quality at every level and this is inculcated in the very fabric of our corporate culture. The ISO 9001:2008 and ISO 14001:2004 certifications reinforce our position as a proactive and forward thinking industry leader, and also reflects our allegiance to be a sustainable organisation."

The ISO 9001:2008 certification is related to quality management systems and designed to help organisations ensure that they meet the needs of customers, shareholders and employees. The ISO 14001:2004 is for the environmental management of businesses and prescribes controls for those activities that have an effect on the environment.

###

About Ila Technologies Pte Ltd

Established in 2005, Singapore-based Ila Technologies Pte Ltd is an industry leader in Grown Diamond technology. Through years of cutting-edge research, the company has created commercially viable and sustainable processes to grow the purest form of colourless diamonds classified as Type IIa. Grown Diamonds by Ila Technologies have applications in the luxury, precision engineering, optical and medical industries. For more information: <http://2atechnologies.com/>

For further information, please contact:

Shelina Mahtani / Claudia Wong
Fifth Ring for Ila Technologies

Priyanka Joshi
Ila Technologies

8/15/2017

Tel : +65 6297 7280 / +65 6297 7270
shelina.mahtani@fiftring.com /
claudia.wong@fiftring.com

Tel : +65 6555 5825
pjoshi@2a-tech.com.sg

[⇐ Ila Technologies on The Call](#)

[Ila Technologies Makes Breakthrough Discovery for Single Crystal Diamond Plates ⇒](#)

Copyrights reserved by Ila Technologies Pte. Ltd. © 2013 | ISO Certified 14001:2004 / 9001:2008 |

[Terms & Conditions](#)

Powered by [Ila Technologies Pte. Ltd.](#)

ISO 9001:2008

Quality Management System – Requirements

(Third Revision)

Contents	Page
1 Scope	1
1.1 General	1
1.2 Application	1
2 Normative references	1
3 Terms and definitions	1
4 Quality management system	2
4.1 General requirements	2
4.2 Documentation requirements	2
5 Management responsibility	3
5.1 Management commitment	3
5.2 Customer focus	4
5.3 Quality policy	4
5.4 Planning	4
5.5 Responsibility, authority and communication	4
5.6 Management review	5
6 Resource management	6
6.1 Provision of resources	6
6.2 Human resources	6
6.3 Infrastructure	6
6.4 Work environment	6
7 Product realization	7
7.1 Planning of product realization	7
7.2 Customer - related processes	7
7.3 Design and development	8
7.4 Purchasing	9
7.5 Production and service provision	10
7.6 Control of monitoring and measuring equipment	11
8 Measurement, analysis and improvement	12
8.1 General	12
8.2 Monitoring and measurement	12
8.3 Control of nonconforming product	13
8.4 Analysis of data	13
8.5 Improvement	14
Bibliography	15

Introduction

0.1 General

The adoption of a quality management system should be a strategic decision of an organization.

The design and implementation of an organization's quality management system is influenced by

- a) its organizational environment, changes in that environment, and the risks associated with that environment,
- b) its varying needs,
- c) its particular objectives,
- d) the products it provides,
- e) the processes it employs,
- f) its size and organizational structure.

It is not the intent of this International Standard to imply uniformity in the structure of quality management systems or uniformity of documentation.

The quality management system requirements specified in this International Standard are complementary to requirements for products. Information marked "NOTE" is for guidance in understanding or clarifying the associated requirement.

This International Standard can be used by internal and external parties, including certification bodies, to assess the organization's ability to meet customer, statutory and regulatory requirements applicable to the product, and the organization's own requirements.

The quality management principles stated in ISO 9000 and ISO 9004 have been taken into consideration during the development of this International Standard.

0.2 Process approach

This International Standard promotes the adoption of a process approach when developing, implementing and improving the effectiveness of a quality management system, to enhance customer satisfaction by meeting customer requirements.

For an organization of function effectively, it has to determine and manage numerous linked activities. An activity or set of activities using resources, and managed in order to enable the transformation of inputs into outputs, can be considered as a process. Often the output from one process directly forms the input to the next.

The application of a system of processes within an organization, together with the identification and interactions of these processes, and their management to produce the desired outcome, can be referred to as the "process approach".

An advantage of the process approach is the ongoing control that it provides over the linkage between the individual processes within the system of processes, as well as over their combination and interaction.

When used within a quality management system, such an approach emphasizes the importance of

- a) understanding and meeting requirements,
- b) the need to consider processes in terms of added value,

- c) obtaining results of process performance and effectiveness, and
- d) continual improvement of processes based on objective measurement.

The model of a process-based quality management system shown in Figure 1 illustrates the process linkages presented in Clauses 4 to 8. This illustration shows that customers play a significant role in defining requirements as inputs. Monitoring of customer satisfaction requires the evaluation of information relating to customer perception as to whether the organization has met the customer requirements. The model shown in Figure 1 covers all the requirements of this International Standard, but does not show processes at a detailed level.

NOTE: In addition, the methodology known as “Plan-Do-Check-Act”(PDCA) can be applied to all processes. PDCA can be briefly described as follows.

Plan: establish the objectives and processes necessary to deliver results in accordance with customer requirements and the organization’s policies.

Do: Implement the processes.

Check: monitor and measure processes and product against policies, objectives and requirements for the product and report the results.

Act: take actions to continually improve process performance.

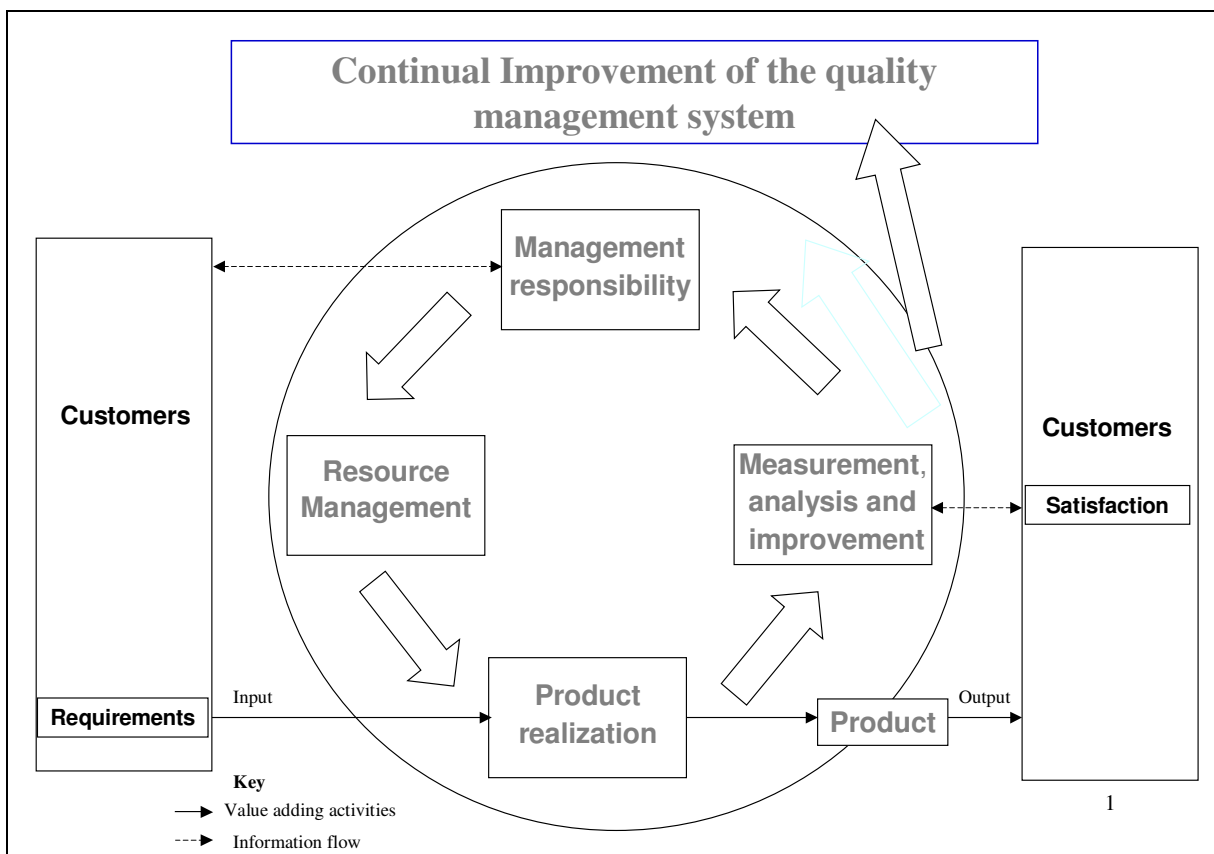


Figure 1 - Model of a process based quality management system

0.3 Relationship with ISO 9004

ISO 9001 and ISO 9004 are quality management system standards which have been designed to complement each other, but can also be used independently.

ISO 9001 specifies requirement for a quality management system that can be used for internal application by organizations, or for certification, or for contractual purposes. It focuses on the effectiveness of the quality management system in meeting customer requirements.

At the time of publication of this International Standard, ISO 9004 is under revision. The revised edition of ISO 9004 will provide guidance to management for achieving sustained success for any organization in a complex, demanding, and ever changing, environment. ISO 9004 provides a wider focus on quality management than ISO 9001: it addresses the needs and expectations of all interested parties and their satisfaction, by the systematic and continual improvement of the organization's performance. However, it is not intended for certification, regulatory or contractual use.

0.4 Compatibility with other management systems

During the development of this International Standard, due consideration was given to the provisions of ISO 14001:2004 to enhance the compatibility of the two standards for the benefit of the user community. Annex A shows the correspondence between ISO 9001:2008 and ISO 14001:2004.

This International Standard does not include requirements specific to other management systems, such as those particular to environmental management, occupational health and safety management, financial management or risk management. However, this International Standard enables an organization to align or integrate its own quality management system with related management system requirements. It is possible for an organization to adapt its existing management system(s) in order to establish quality management system that complies with the requirements of this International Standard.

ISO 9001: 2008

QUALITY MANAGEMENT SYSTEMS – REQUIREMENTS

(Third Revision)

1 Scope

1.1 General

This International Standard specifies requirements for a quality management system where an organisation

- a) needs to demonstrate its ability to consistently provide product that meets customer and applicable statutory and regulatory requirements, and
- b) aims to enhance customer satisfaction through the effective application of the system, including processes for continual improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements.

Note 1 In this International Standard, the term “product” only applies to

- a) product intended for , or required by, a customer
- b) any intended output resulting from the product realization processes

Note 2 Statutory and regulatory requirements can be expressed as legal requirements

1.2 Application

All requirement of this international Standard are generic and are intended to be applicable to all organizations, regardless of type, size and product provided.

Where any requirement(s) of this International Standard cannot be applied due to the nature of an organization and its product, this can be considered for exclusion.

Where exclusions are made, claims of conformity to this International Standard are not acceptable unless these exclusions are limited to requirements within clause 7, and such exclusions do not affect the organization's ability, or responsibility, to provide product that meets customer and applicable statutory and regulatory requirements.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies

ISO 9000:2005, Quality Management Systems- Fundamentals and vocabulary

3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 9000 apply. Throughout the text of this International Standard, wherever term “product” occurs, it can also mean “service”

4 Quality management system

4.1 General requirements

The organization shall establish, document, implement and maintain a quality management system and continually improve its effectiveness in accordance with the requirements of this International Standard.

The organization shall:

- a) determine the processes needed for the quality management system and their application throughout the organization (see 1.2),
- b) determine the sequence and interaction of these processes,
- c) determine criteria and methods needed to ensure that both the operation and control of these processes are effective,
- d) ensure the availability of resources and information necessary to support the operation and monitoring of these processes,
- e) monitor, measure where applicable, and analyse these processes, and
- f) implement actions necessary to achieve planned results and continual improvement of these processes.

These processes shall be managed by the organization in accordance with the requirements of this International Standard.

Where an organization chooses to outsource any process that affects product conformity to requirements, the organization shall ensure control over such processes. The type and extent of control to be applied to these outsourced processes shall be defined within the quality management system.

NOTE 1 Processes needed for the quality management system referred to above include processes for management activities, provision of resources, product realization, measurement, analysis and improvement.

NOTE 2 An “outsourced process” is a process that the organization needs for its quality management system and which the organization chooses to have performed by an external party.

NOTE 3 Ensuring control over outsourced processes does not absolve the organization of the responsibility of conformity to all customer, statutory and regulatory requirements. The type and extent of control to be applied to the outsourced process can be influenced by factors such as

- a) the potential impact of the outsourced process on the organization’s capability to provide product that conforms to requirements
- b) the degree to which the control for the process is shared.
- c) the capability of achieving the necessary control through the application of 7.4

4.2 Documentation requirements

4.2.1 General

The quality management system documentation shall include

- a) documented statements of a quality policy and quality objectives,
- b) a quality manual,
- c) documented procedures and records required by this International Standard, and
- d) documents, including records, determined by the organization to ensure the effective planning, operation and control of its processes.

NOTE 1 Where the term “documented procedure” appears within this International Standard, this means that the procedure is established, documented, implemented and maintained. A single document may address the requirements for one or more procedures. A requirement for a documented procedure may be covered by more than one document.

NOTE 2 The extent of the quality management system documentation can differ from one organization to another due to:

- a) the size of organization and type of activities,
- b) the complexity of processes and their interactions, and
- c) the competence of personnel.

NOTE 3 The documentation can be in any form or type of medium.

4.2.2 Quality manual

The organization shall establish and maintain a quality manual that includes

- a) the scope of the quality management system, including details of and justification for any exclusions (see 1.2),
- b) the documented procedures established for the quality management system, or reference to them, and
- c) a description of the interaction between the processes of the quality management system.

4.2.3 Control of documents

Documents required by the quality management system shall be controlled. Records are a special type of document and shall be controlled according to the requirements given in 4.2.4.

A documented procedure shall be established to define the controls needed

- a) to approve documents for adequacy prior to issue,
- b) to review and update as necessary and re-approve documents,
- c) to ensure that changes and the current revision status of documents are identified,
- d) to ensure that relevant versions of applicable documents are available at points of use,
- e) to ensure that documents remain legible and readily identifiable,
- f) to ensure that documents of external origin determined by the organization to be necessary for the planning and operation of the quality management system are identified and their distribution controlled, and
- g) to prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.

4.2.4 Control of records

Records established to provide evidence of conformity to requirements and of the effective operation of the quality management system shall be controlled.

The organization shall establish a documented procedure to define the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records.

Records shall remain legible, readily identifiable and retrievable.

5 Management responsibility

5.1 Management commitment

Top management shall provide evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by

- a) communicating to the organization the importance of meeting customer as well as statutory and regulatory requirements,
- b) establishing the quality policy,
- c) ensuring that quality objectives are established,
- d) conducting management reviews, and
- e) ensuring the availability of resources.

5.2 Customer focus

Top management shall ensure that customer requirements are determined and are met with the aim of enhancing customer satisfaction. (see 7.2.1 and 8.2.1)

5.3 Quality policy

Top management shall ensure that the quality policy

- a) is appropriate to the purpose of the organization,
- b) includes a commitment to comply with requirements and continually improve the effectiveness of the quality management system,
- c) provides a framework for establishing and reviewing quality objectives,
- d) is communicated and understood within the organization, and
- e) is reviewed for continuing suitability.

5.4 Planning

5.4.1 Quality objectives

Top management shall ensure that quality objectives, including those needed to meet requirements for product (see 7.1 a)), are established at relevant functions and levels within the organization. The quality objectives shall be measurable and consistent with the quality policy.

5.4.2 Quality management system planning

Top management shall ensure that

- a) the planning of the quality management system is carried out in order to meet the requirements given in 4.1 as well as the quality objectives, and
- b) the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented.

5.5 Responsibility, authority and communication

5.5.1 Responsibility and authority

Top management shall ensure that responsibilities and authorities are defined and communicated within the organization.

5.5.2 Management representative

Top management shall appoint a member of the organization's management who, irrespective of other responsibilities, shall have responsibility and authority that includes

- a) ensuring that processes needed for the quality management system are established, implemented and maintained,
- b) reporting to top management on the performance of the quality management system and any need for improvement, and
- c) ensuring the promotion of awareness of customer requirements throughout the organization.

NOTE: The responsibility of management representative can include liaison with external parties on matters relating to the quality management system.

5.5.3 Internal communication

Top management shall ensure that appropriate communication processes are established within the organization and that communication takes place regarding the effectiveness of the quality management system.

5.6 Management review

5.6.1 General

Top management shall review the organization's quality management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives.

Records from management reviews shall be maintained (see 4.2.4).

5.6.2 Review input

The input to management review shall include information on:

- a) results of audits,
- b) customer feedback,
- c) process performance and product conformity,
- d) status of preventive and corrective actions,
- e) follow-up actions from previous management reviews,
- f) changes that could affect the quality management system, and
- g) recommendations for improvement.

5.6.3 Review output

The output from the management review shall include any decisions and actions related to:

- a) improvement of the effectiveness of the quality management system and its processes,
- b) improvement of product related to customer requirements, and
- c) resource needs.

6 Resource management

6.1 Provision of resources

The organization shall determine and provide the resources needed

- a) to implement and maintain the quality management system and continually improve its effectiveness, and
- b) to enhance customer satisfaction by meeting customer requirements.

6.2 Human resources

6.2.1 General

Personnel performing work affecting conformity to product requirements shall be competent on the basis of appropriate education, training, skills and experience.

Note: Conformity to product requirements can be affected directly or indirectly by personnel performing any task within the quality management system

6.2.2 Competence, training and awareness

The organization shall

- a) determine the necessary competence for personnel performing work affecting conformity to product requirements,
- b) where applicable provide training or take other actions to achieve the necessary competence.
- c) evaluate the effectiveness of the actions taken,
- d) ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives, and
- e) maintain appropriate records of education, training, skills and experience (see 4.2.4).

6.3 Infrastructure

The organization shall determine, provide and maintain the infrastructure needed to achieve conformity to product requirements. Infrastructure includes, as applicable,

- a) buildings, workspace and associated utilities,
- b) process equipment (both hardware and software), and
- c) supporting services (such as transport, communication or information systems).

6.4 Work environment

The organization shall determine and manage the work environment needed to achieve conformity to product requirements.

Note: The term 'work environment' relates to those conditions under which work is performed including physical environmental and other factors (such as noise, temperature, humidity, lighting or weather).

7 Product realization

7.1 Planning of product realization

The organization shall plan and develop the processes needed for product realization. Planning of product realization shall be consistent with the requirements of the other processes of the quality management system (see 4.1).

In planning product realization, the organization shall determine the following, as appropriate:

- a) quality objectives and requirements for the product;
- b) the need to establish processes and documents, and to provide resources specific to the product;
- c) required verification, validation, monitoring, measurement, inspection and test activities specific to the product and the criteria for product acceptance;
- d) records needed to provide evidence that the realization processes and resulting product meet requirements (see 4.2.4).

The output of this planning shall be in a form suitable for the organization's method of operations.

NOTE 1 A document specifying the processes of the quality management system (including the product realization processes) and the resources to be applied to a specific product, project or contract, can be referred to as a quality plan.

NOTE 2 The organization may also apply the requirements given in 7.3 to the development of product realization processes.

7.2 Customer - related processes

7.2.1 Determination of requirements related to the product

The organization shall determine:

- a) requirements specified by the customer, including the requirements for delivery and post-delivery activities,
- b) requirements not stated by the customer but necessary for specified or intended use, where known,
- c) statutory and regulatory requirements applicable to the product, and
- d) any additional requirements considered necessary by the organization.

Note: Post-delivery activities include, for example, actions under warranty provisions, contractual obligations such as maintenance services, and supplementary services such as recycling or final disposal.

7.2.2 Review of requirements related to the product

The organization shall review the requirements related to the product. This review shall be conducted prior to the organization's commitment to supply a product to the customer (e.g. submission of tenders, acceptance of contracts or orders, acceptance of changes to contracts or orders) and shall ensure that

- a) product requirements are defined,
- b) contract or order requirements differing from those previously expressed are resolved, and
- c) the organization has the ability to meet the defined requirements.

Records of the results of the review and actions arising from the review shall be maintained (see 4.2.4).

Where the customer provides no documented statement of requirement, the customer requirements shall be confirmed by the organization before acceptance.

Where product requirements are changed, the organization shall ensure that relevant documents are amended and that relevant personnel are made aware of the changed requirements.

NOTE: In some situations, such as internet sales, a formal review is impractical for each order. Instead the review can cover relevant product information such as catalogues or advertising material.

7.2.3 Customer communication

The organization shall determine and implement effective arrangements for communicating with customers in relation to

- a) product information,
- b) enquiries, contracts or order handling including amendments, and
- c) customer feedback, including customer complaints.

7.3 Design and development

7.3.1 Design and development planning

The organization shall plan and control the design and development of product. During the design and development planning, the organization shall determine:

- a) the design and development stages,
- b) the review, verification and validation that are appropriate to each design and development stage, and
- c) the responsibilities and authorities for design and development.

The organization shall manage the interfaces between different groups involved in design and development to ensure effective communication and clear assignment of responsibility.

Planning output shall be updated, as appropriate, as the design and development progresses.

Note: Design and development review, verification and validation have distinct purposes. They can be conducted and recorded separately or in any combination, as suitable for the product and the organization.

7.3.2 Design and development inputs

Inputs relating to product requirements shall be determined and records maintained (see 4.2.4).

These inputs shall include

- a) functional and performance requirements,
- b) applicable statutory and regulatory requirements,
- c) where applicable, information derived from previous similar designs, and
- d) other requirements essential for design and development.

The inputs shall be reviewed for adequacy. Requirements shall be complete, unambiguous and not in conflict with each other.

7.3.3 Design and development outputs

The outputs of design and development shall be in a form suitable for verification against the design and development input and shall be approved prior to release.

Design and development outputs shall

- a) meet the input requirements for design and development ,
- b) provide appropriate information for purchasing, production and service provision ,
- c) contain or reference product acceptance criteria, and
- d) specify the characteristics of the product that are essential for its safe and proper use.

Note: Information for production and service provision can include details for the preservation of product.

7.3.4 Design and development review

At suitable, stages, systematic reviews of design and development shall be performed in accordance with planned arrangements (see 7.3.1).

- a) to evaluate the ability of the results of design and development to meet requirements, and
- b) to identify any problems and propose necessary actions.

Participants in such reviews shall include representatives of functions concerned with the design and development stage(s) being reviewed. Records of the results of the reviews and any necessary actions shall be maintained (see 4.2.4).

7.3.5 Design and development verification

Verification shall be performed in accordance with planned arrangements (see 7.3.1) to ensure that the design and development outputs have met the design and development input requirements. Records of the results of the verification and any necessary actions shall be maintained (see 4.2.4).

7.3.6 Design and development validation

Design and development validation shall be performed in accordance with planned arrangements (see 7.3.1) to ensure that the resulting product is capable of meeting the requirements for the specified application or intended use, where known. Wherever practicable, validation shall be completed prior to the delivery or implementation of the product. Records of the results of validation and any necessary actions shall be maintained (see 4.2.4).

7.3.7 Control of design and development changes

Design and development changes shall be identified and records maintained. The changes shall be reviewed, verified and validated, as appropriate, and approved before implementation. The review of design and development changes shall include evaluation of the effect of the changes on constituent parts and product already delivered. Records of the results of the review of changes and any necessary actions shall be maintained (see 4.2.4).

7.4 Purchasing

7.4.1 Purchasing process

The organization shall ensure that purchased product conforms to specified purchase requirements. The type and extent of control applied to the supplier and the purchased product shall be dependent upon the effect of the purchased product on subsequent product realization or the final product.

The organization shall evaluate and select suppliers based on their ability to supply product in accordance with the organization's requirements. Criteria for selection, evaluation and re-evaluation shall be established. Records of the results of evaluations and any necessary actions arising from the evaluation shall be maintained (see 4.2.4).

7.4.2 Purchasing information

Purchasing information shall describe the product to be purchased, including where appropriate:

- a) requirements for approval of product, procedures, processes and equipment,
- b) requirements for qualification of personnel, and
- c) quality management system requirements.

The organization shall ensure the adequacy of specified purchase requirements prior to their communication to the supplier.

7.4.3 Verification of purchased product

The organization shall establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements.

Where the organization or its customer intends to perform verification at the supplier's premises, the organization shall state the intended verification arrangements and method of product release in the purchasing information.

7.5 Production and service provision

7.5.1 Control of production and service provision

The organization shall plan and carry out production and service provision under controlled conditions. Controlled conditions shall include, as applicable:

- a) the availability of information that describes the characteristics of the product,
- b) the availability of work instructions, as necessary,
- c) the use of suitable equipment,
- d) the availability and use of monitoring and measuring equipment.
- e) the implementation of monitoring and measurement, and
- f) the implementation of product release, delivery and post-delivery activities.

7.5.2 Validation of processes for production and service provision

The organization shall validate any processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement and as a consequence, deficiencies become apparent only after the product is in use or the service has been delivered.

Validation shall demonstrate the ability of these processes to achieve planned results.

The organization shall establish arrangements for these processes including, as applicable,

- a) defined criteria for review and approval of the processes,
- b) approval of equipment and qualification of personnel,
- c) use of specific methods and procedures,

- d) requirement for records (see 4.2.4), and
- e) revalidation.

7.5.3 Identification and traceability

Where appropriate, the organization shall identify the product by suitable means throughout product realization.

The organization shall identify the product status with respect to monitoring and measurement requirements throughout product realization.

Where traceability is a requirement, the organization shall control the unique identification of the product and maintain records (see 4.2.4).

NOTE: In some industry sectors, configuration management is a means by which identification and traceability are maintained.

7.5.4 Customer property

The organization shall exercise care with customer property while it is under the organization's control or being used by the organization. The organization shall identify, verify, protect and safeguard customer property provided for use or incorporation into the product. If any customer property is lost, damaged or otherwise found to be unsuitable for use, the organization shall report this to the customer and maintain records (see 4.2.4).

NOTE: Customer property can include intellectual property and personal data.

7.5.5 Preservation of product

The organization shall preserve the product during internal processing and delivery to the intended destination in order to maintain conformity to requirements. As applicable, preservation shall include identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.

7.6 Control of monitoring and measuring equipment

The organization shall determine the monitoring and measurement to be undertaken and the monitoring and measuring equipment needed to provide evidence of conformity of product to determined requirements.

The organization shall establish processes to ensure that monitoring and measurement can be carried out and are carried out in a manner that is consistent with the monitoring and measurement requirements.

Where necessary to ensure valid results, measuring equipment shall

- a) be calibrated or verified, or both, at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification shall be recorded (see 4.2.4);
- b) be adjusted or re-adjusted as necessary;
- c) have identification in order to determine its calibration status;
- d) be safeguarded from adjustments that would invalidate the measurement result;
- e) be protected from damage and deterioration during handling, maintenance and storage.

In addition, the organization shall assess and record the validity of the previous measuring results when the equipment is found not to confirm to requirements. The organization shall take appropriate action on the equipment and any product affected.

Records of the results of calibration and verification shall be maintained (see 4.2.4).

When used in the monitoring and measurement of specified requirements, the ability of computer software to satisfy the intended application shall be confirmed. This shall be undertaken prior to initial use and reconfirmed as necessary.

NOTE: Confirmation of the ability of computer software to satisfy the intended application would typically include its verification and configuration management to maintain its suitability for use.

8 Measurement, analysis and improvement

8.1 General

The organization shall plan and implement the monitoring, analysis and improvement processes needed

- a) to demonstrate conformity to product requirements.
- b) to ensure conformity of the quality management system, and
- c) to continually improve the effectiveness of the quality management system.

This shall include determination of applicable methods, including statistical techniques, and the extent of their use.

8.2 Monitoring and measurement

8.2.1 Customer satisfaction

As one of the measurements of the performance of the quality management system, the organization shall monitor information relating to customer perception as to whether the organization has met customer requirements. The methods for obtaining and using this information shall be determined.

NOTE: Monitoring customer perception can include obtaining input from sources such as customer satisfaction surveys, customer data on delivered product quality, user opinion surveys, lost business analysis, compliments, warranty claims and dealer reports.

8.2.2 Internal audit

The organization shall conduct internal audits at planned intervals to determine whether the quality management system

- a) conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and to the quality management system requirements established by the organization, and
- b) is effectively implemented and maintained.

An audit programme shall be planned, taking into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits. The audit criteria, scope, frequency and methods shall be defined. The selection of auditors and conduct of audits shall ensure objectivity and impartiality of the audit process. Auditors shall not audit their own work.

A documented procedure shall be established to define the responsibilities and requirements for planning and conducting audits, establishing records and reporting results.
Records of the audits and their results shall be maintained (see 4.2.4).

The management responsible for the area being audited shall ensure that any necessary corrections and corrective actions are taken without undue delay to eliminate detected non-conformities and their causes.

Follow-up activities shall include the verification of the actions taken and the reporting of verification results (see 8.5.2) NOTE: See ISO 19011 for guidance.

8.2.3 Monitoring and measurement of processes

The organization shall apply suitable methods for monitoring and, where applicable, measurement of the quality management system processes. These methods shall demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, correction and corrective action shall be taken, as appropriate.

NOTE: When determining suitable methods, it is advisable that the organization consider the type and extent of monitoring or measurement appropriate to each of its processes in relation to their impact on the conformity to product requirements and on the effectiveness of the quality management system.

8.2.4 Monitoring and measurement of product

The organization shall monitor and measure the characteristics of the product to verify that product requirements have been met. This shall be carried out at appropriate stages of the product realization process in accordance with the planned arrangements (see 7.1). Evidence of conformity with the acceptance criteria shall be maintained.

Records shall indicate the person(s) authorizing release of product for delivery to the customer (see 4.2.4).

The release of product and delivery of service to the customer shall not proceed until the planned arrangements (see 7.1) have been satisfactorily completed, unless otherwise approved by a relevant authority and, where applicable, by the customer.

8.3 Control of nonconforming product

The organization shall ensure that product which does not conform to product requirements is identified and controlled to prevent its unintended use or delivery. A documented procedure shall be established to define the controls and related responsibilities and authorities for dealing with nonconforming product.

Where applicable, the organization shall deal with nonconforming product by one or more of the following ways:

- a) by taking action to eliminate the detected nonconformity;
- b) by authorizing its use, release or acceptance under concession by a relevant authority and, where applicable, by the customer;
- c) by taking action to preclude its original intended use or application;
- d) by taking action appropriate to the effects, or potential effects, of the nonconformity when nonconforming product is detected after delivery or use has started.

When non-conforming product is corrected it shall be subject to re-verification to demonstrate conformity to the requirements.

Records of the nature of the nonconformities and any subsequent actions taken, including concessions obtained, shall be maintained (see 4.2.4).

8.4 Analysis of data

The organization shall determine, collect and analyse appropriate data to demonstrate the suitability and effectiveness of the quality management system and to evaluate where continual improvement of the effectiveness of the quality management system can be made. This shall include data generated as a result of monitoring and measurement and from other relevant sources.

The analysis of data shall provide information relating to

- a) customer satisfaction (see 8.2.1)
- b) conformity to product requirements (see 8.2.4).
- c) characteristics and trends of processes and products including opportunities for preventive action (see 8.2.3 and 8.2.4). and
- d) suppliers (7.4).

8.5 Improvement

8.5.1 Continual improvement

The organization shall continually improve the effectiveness of the quality management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review.

8.5.2 Corrective action

The organization shall take action to eliminate the causes of nonconformities in order to prevent recurrence. Corrective actions shall be appropriate to the effects of the nonconformities encountered.

A documented procedure shall be established to define requirements for

- a) reviewing nonconformities (including customer complaints),
- b) determining the causes of non-conformities,
- c) evaluating the need for action to ensure that non-conformities do not recur,
- d) determining and implementing action needed,
- e) records of the results of action taken (see 4.2.4), and
- f) reviewing the effectiveness of the corrective action taken.

8.5.3 Preventive action

The organization shall determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence. Preventive actions shall be appropriate to the effects of the potential problems.

A documented procedure shall be established to define requirements for

- a) determining potential nonconformities and their causes,
- b) evaluating the need for action to prevent occurrence of nonconformities,
- c) determining and implementing action needed,
- d) records of results of action taken (see 4.2.4), and
- e) reviewing the effectiveness of the preventive action taken.

Bibliography

- [1] ISO 9004 :- ¹⁾ Managing for the sustained success of an organization – A quality management approach
- [2] ISO 10001 : 2007, Quality management – Customer satisfaction – Guidelines for codes of conduct for organizations
- [3] ISO 10002 : 2004, Quality management – Customer satisfaction – Guidelines for complaints handling in organizations
- [4] ISO 10003 : 2007, Quality management - Customer satisfaction – Guidelines for dispute resolution external to organizations
- [5] ISO 10005 : 2005, Quality management systems – Guidelines for quality plans
- [6] ISO 10006 : 2003, Quality management systems – Guidelines for quality management in projects
- [7] ISO 10007 : 2003, Quality management systems – Guidelines for configuration management
- [8] ISO 10012 : 2003, Measurement management systems – Requirements for measurement processes and measuring equipment.
- [9] ISO / TR 10013 : 2001, Guidelines for quality management system documentation
- [10] ISO 10014 : 2006, Quality management – Guidelines for realizing financial and economic benefits
- [11] ISO 10015 : 1999, Quality management - Guidelines for training]
- [12] ISO/TR 10017 : 2003, Guidance on statistical techniques for ISO 9001 : 2000
- [13] ISO 10019 : 2005, Guidelines for the selection of quality management system consultants and use of their services
- [14] ISO 14001 : 2004, Environmental management systems – Requirements with guidance for use
- [15] ISO 19011 : 2002, Guidelines for quality and / or environmental management systems auditing
- [16] IEC 60300-1:2003, Dependability management – Part 1: Dependability management Systems
- [17] IEC 61160 : 2006, Design review
- [18] ISO / IEC 90003 : 2004, Software engineering – Guidelines for the application of ISO 9001 : 2000 to computer software
- [19] Quality management principles ²⁾, ISO, 2001
- [20] ISO 9000 – Selection and use ²⁾, ISO, 2008
- [21] ISO 9001 for small Businesses – What to do; Advice from ISO / TC 176 ³⁾, ISO, 2002
- [22] ISO Management Systems ⁴⁾
- [23] Reference web sites:
 - <http://www.iso.org>
 - <http://www.tc176.org>
 - <http://www.iso.org/tc176/sc2>
 - [http://www.iso.org/tc176/ISO 9001Auditing PracticesGroup](http://www.iso.org/tc176/ISO_9001Auditing_PracticesGroup)

¹⁾ To be published (Revision of ISO 9004:2000)

²⁾ Available from website <http://www.iso.org>

³⁾ To be updated and aligned with ISO 9001:2008

⁴⁾ A bimonthly publication which provides comprehensive coverage of international developments relating to ISO's management system standards, including news of their implementation by diverse organisations around the world. Available from ISO Central Secretariat (sales@iso.org)

This is the Exhibit marked “SFW-44”

referred to in the Affidavit of

Susan Jane Fletcher Watts

affirmed in the United Kingdom

on this 27 day of March 2018

Before me

A handwritten signature in black ink, appearing to read 'Richard Griffiths', written over a horizontal line.

A NOTARY PUBLIC

RICHARD GARETH GRIFFITHS
Solicitor & Notary Public
Downend Lodge
Chieveley
ENGLAND RG20 8TN

Exhibit No.	Description	Page No.
44(a)	Litigation Edge Writeup	368
44(b)	Sample Litigation Edge Projects	375
44(c)	Nuix writeup	378



LITIGATION EDGE WRITEUP

This Writeup is provided by Litigation Edge in response to eDiscovery enquiries from Amica Law LLC

1 PROFILE

In 2009, the founders of Litigation Edge recognised the difficulty that the eDiscovery Practice Direction (then known as PD3 of 2009) presented to law firms trained in traditional paper-based discovery, and were keen to provide the legal industry with the tools and education / training needed to overcome these difficulties.

Since its incorporation in 2011, Litigation Edge has been providing eDiscovery consulting services for Singapore law practices. Our team has a staff strength of 8 persons, including 6 eDiscovery / Litigation Support consultants.

Unlike companies for whom eDiscovery is supplementary to forensic investigations and collections, Litigation Edge primary mission is the provision of eDiscovery and litigation support services to the legal industry.

Our world revolves around lawyers and the dispute resolution industry. We have a deep understanding of the enabling eDiscovery legal provisions (namely Practice Direction V) and the Court Rules relating to discovery and trial bundles.

What this means is that we are able to provide a comprehensive end-to-end eDiscovery service and to fill the gaps that are less apparent to eDiscovery service providers who do not have an understanding of the work processes in a law firm.

For example, we are currently the only eDiscovery consulting company in Singapore that also operates a full-fledged litigation support bureau for document digitization and coding/indexing services. We also provide a unique service to convert load files such as Concordance.dat files into court compliant trial bundle index. Our litigation support bureau services also provides litigation and arbitration support services to many law firms in document intensive dispute matters that do not involve eDiscovery.

2 EDISCOVERY EXPERIENCE

Members of our team have been involved in more than 70 eDiscovery projects, including 8 High Court eDiscovery projects in Singapore.

Broadly speaking, our eDiscovery work can be categorised as follows :

1. eDiscovery consultancy work (including assistance in crafting the eDiscovery Plans and providing eDiscovery enablement courses to firms that need to respond to an eDiscovery request);
2. eDiscovery Plan execution (where we are engaged by 1 or more parties to execute an agreed eDiscovery Plan);
3. Post-eDiscovery assistance to provide online evidence review platforms to enable the review of voluminous electronic emails and electronic documents;
4. Post eDiscovery assistance to convert load files to trial bundles, including agreed bundles and e-bundles (hyperlinked and searchable bundles with portable search engine included);
5. Conversion of electronic documents (eg emails) and paper documents into other PDF.

3 TEAM MEMBERS

CVs of the key team members who will be involved in your project are enclosed in Annex A. Please do take time to peruse their CVs.

4 TECHNOLOGY PLATFORMS

We use several eDiscovery tools including Nuix, Venio, Magnum and Evidence Organiser in our eDiscovery projects. Our tool selection is based on the requirements of the case at hand.

We look forward to working with you and thank you for considering us in your eDiscovery projects.

Appendix B3 – Resumes of Key Personnel

Resume of Serena Lim

Current

1. Director and Founder of Litigation Edge Pte Ltd
2. CEO and Founder of Bizibody Technology Pte Ltd

Past

1. Managing Partner at Khattar Wong & Partners (HK)
2. Partner at Khattar Wong & Partners (Singapore)

Education

- ❖ National University of Singapore
LLB (1983 – 1987)

Memberships

- ❖ Law Society of Singapore
- ❖ Singapore Academy of Law

Summary Profile

Serena Lim practiced as a corporate lawyer for 11 years in Khattar Wong & Partners, before embarking on a career as a business owner of and legal technology consultant in Bizibody Technology in 2000. Today, Bizibody Technology is the leading legal technology and practice management consultancy in Singapore. Serena is also the founder of 5 other companies which specialize in providing technology and services to the legal industry.

Since PD3 of 2009, Serena has been focusing on eDiscovery and litigation workflows with the objective of identifying areas where technology will address the “pain points” and reduce the stress and labour involved in the discovery process. She has been providing eDiscovery seminars to lawyers and paralegals since February 2010.

In January 2011, Serena started Litigation Edge with Brad Mixner (an eDiscovery specialist) and Chen Jun Bin (a Litigation Support specialist) to provide a comprehensive range of eDiscovery consultancy and litigation support services to the legal industry. At Litigation Edge, Serena’s focuses on providing e-discovery and paper-less litigation consultancy and education.

Serena works closely with the Singapore Academy of Law to design and conduct e-discovery seminars for lawyers and paralegals. Notable nationwide legal technology projects she has been involved in, include Justice Online, Lawnet, the Supreme Court’s IELS (Integrated Electronic Litigation System) project and the Law Society’s Practice Consult scheme. She has also contributed to the Singapore eDiscovery literature through her blogs posts in www.litigationedge.asia, as well as her contributions to law society publications. Her article “Electronic Discovery: An Evolution of Law and Practice”, which was jointly authored with Yeong Zee Kin, has been published by Academy Publishing as part of the E-Litigation Conference Publication in August 2012.

Serena heads the eDiscovery team at Litigation Edge.

Appendix B3 – Resumes of Key Personnel**Resume of JunBin Chen****Current**

Founder and Director at Litigation Edge Pte Ltd

Education

- ❖ University of London (2004 – 2006)
- ❖ Temasek Polytechnic, Diploma in Accounting and Finance (1998 – 2001)

Past

1. Consultant at Asia Legal Technologies
2. Operations Manager and Project Manager at Data Management Corporation Pte Ltd

Summary Profile

Junbin Chen currently heads the Litigation Support division at Litigation Edge Pte Ltd.

Junbin is experienced in an extensive range of litigation support and e-discovery processes. He has undertaken both business development and project management roles in litigation support companies, at and prior to Litigation Edge.

Junbin's areas of specialization include:

- Data Room Management
 - Undertaking different aspects of the electronic discovery reference model, including document collection, ingestion, processing, executing eDiscovery searches, production and eDiscovery inspection.
 - Project managing large scale document digitization and metadata coding projects.
 - Project managing large scale document production projects
-



Appendix A – Sample Litigation Edge Projects

I. eDiscovery Cases

PREAMBLE: THESE ARE CASES WHERE AN EDISCOVERY PROTOCOL / PLAN HAD BEEN FORMALLY INITIATED PURSUANT TO PD3 OF 2009 OR PART V OF THE PRACTICE DIRECTIONS.

1. High Court suit involving commercial dispute by joint venture parties regarding breach of joint venture agreement in relation to a failed power project in Kazakhstan.

Scope of Engagement : Remote collection of emails and documents in workstations and documents in shared drive; drafting, scoping and negotiations re eDiscovery Protocol; liaising with end-client on their IT infrastructure and document storage/ retention/destruction policies; execution of eDiscovery protocol, including selection of eDiscovery software, preparing and co-ordinating detailed eDiscovery workplan, providing search reports, production of PDFs and providing facilities and search operator to facilitate the inspection of native documents by other side.

Client: Mid-sized law firm

Notes / Considerations / Challenges:

1. Evidence housed in remote servers and laptops.
2. To save travel costs, evidence collection was undertaken remotely.
3. Language / communication challenges
4. Other challenges included issues relating to document retention policies and the facilitation of a collaborative approach between parties

2. High Court suit involving Singapore company with operations in the PRC where the alleged breaches involved theft of confidential information and director's breach of fiduciary duty.

Scope of Engagement : Drafting and Scoping of eDiscovery Protocol, explaining and educating lawyers on eDiscovery issues, best practices and pitfalls, liaising with end-client in relation to the IT infrastructure and document storage/ retention/destruction policies

Client: Mid-sized law firm (Acting for Plaintiff)

Notes / Considerations / Challenges:

- a. Keyword crafting was the main challenge as proposed terms included a number of common words
- b. The other side objected to our engagement as joint experts as we had assisted in the drafting of the eDiscovery protocol.





3. High Court Suit involving commercial breach of contract

Scope of Engagement : Execution of an agreed eDiscovery protocol including forensic imaging, preparing and co-ordinating detailed eDiscovery workplan, search execution, privilege search execution, documentation of search results, preparing draft electronic index of files and native production.

Client: Mid-sized law firm

4. High Court suit involving theft of confidential information and breach of copyright issues, against ex-employees, where the subject matter included manuals and standard operating procedure documents.

Scope of Engagement : Drafting and Scoping of eDiscovery Protocol, providing adhoc eDiscovery training, highlighting and discussing eDiscovery issues, best practices and pitfalls, liaising with end-client in relation to the IT infrastructure and document storage/ retention/destruction policies

Client: Mid-sized law firm

5. High Court suit involving theft of confidential information by ex-employee who joined a competitor company

Scope of Engagement : Providing an eDiscovery platform to facilitate the client's review of documents which resulted from the execution of an agreed eDiscovery Plan, including ingestion, processing and training and handholding.

Client: Small Law Firm

Notes/ Considerations / Challenges: The documents had been collected and search executed by a forensic company using forensic software. However, the forensic company were unable to provide evidence review facilities to facilitate the review of the 5000 odd native documents which resulted from the search.

6. High Court suit involving joint venture dispute

Scope of Engagement : Production of trial bundles. The client has used an eDiscovery system provided by another eDiscovery service provider. However, the other service provider was unable to assist client to create the trial bundles using the document metadata, so we were engaged to assist in the production of the trial bundles even though we were not the eDiscovery platform providers.

Client: Big 5 Law Firm

Notes / Considerations / Challenges:



- a. Voluminous document set involving 150,000 pages (18,000 documents) which was required to be undertaken within 3 weeks.
- b. Project consisted of paper documents, as well as native documents.

7. High Suit involving breach of commercial contract

Scope of Engagement : Email processing, de-duplication and search execution pursuant to eDiscovery Order, production of document lists and PDFs using metadata from native .pst,

Client: Big 5 Law Firm

Notes / Considerations / Challenges:

- a. As some of the documents had already been produced at General Discovery, there was a need to match documents against the General Discovery list of documents and remove the same from our list, using a mix of automation and human QC.
- b. As some of the documents had already been produced in another list, there was a need to match our documents against the other list, remove the same from our list and then merge the lists, using a mix of automation and human QC.

8. High Suit involving dispute amongst members of a condominium regarding an en-bloc sale.

Scope of Engagement : Assisting in the scoping and drafting of eDiscovery Protocol, explaining and educating lawyers on eDiscovery issues, best practices and pitfalls

Client: Small Law firm





II. Non-eDiscovery Cases involving voluminous documents and the use of an eDiscovery or evidence review platform

PREAMBLE: THESE ARE CASES WHICH INVOLVE VOLUMINOUS ELECTRONIC OR PAPER EVIDENCE, WHERE PARTIES ELECTED TO USE AN EDISCOVERY PLATFORM TO MANAGE AND REVIEW THEIR ELECTRONIC AND/OR PAPER EVIDENCE, EVEN IN THE ABSENCE OF A FORMAL EDISCOVERY PROTOCOL. WHAT FOLLOWS IS A SMALL SAMPLING OF OUR DIVERSE WORK IN THIS CATEGORY. SUCH WORK FORMS THE MAIN CORPUS OF OUR DAILY WORK:

1. High Court suit involving dispute over design of ship.

Scope of Engagement : Suit did not involve an eDiscovery protocol but an eDiscovery system was deployed to facilitate cost effective review of voluminous documents by client and their overseas experts.

Client: Mid-sized law firm

Notes / Considerations / Challenges:

- a. Documents in Norwegian with a need to link English translations to the original Norwegian emails while keeping attachments and other metadata intact.
- b. Documents which were extracted from a specific document management system
- c. Autocad drawings accounting for over 60% of the data set along with special format files that accompany drawing and design applications.
- d. Parent and child relationships needed to be manually coded for the entire set of drawings based on rules related to filename pattern and folder naming.
- e. All translated emails needed to be coded for Date, Sender, Receivers and Subject Title to enable searching and production in the prescribed discovery list of documents format.
- f. Reviewing parties and subject matter experts were located in different global time zones.

2. USA eDiscovery matter where a global IT consulting firm was accused of stealing competitor's source code to develop their own product.

Scope of Engagement : We were engaged to undertake the onsite collection and processing of electronic data. The data was in a server in Bangalore.

Client : North American eDiscovery consultants



Notes / Considerations / Challenges:

- a. On-site forensic collection in Bangalore of server data which needed to be completed in a few hours since the server was an active one.
- b. Forensic collection team needed to be prepared for multiple eventualities since the collection site was remote and many decisions needed to be made in discussion with the remote team a few hours prior to the collection exercise
- c. All deleted data, fragments, lost files and recovered bits needed to be carefully extracted along with the active data.

3. Cross border estate dispute involving more than 150 boxes of printed documents

Scope of Engagement : We provided digitization and coding services for ingestion into a hosted document review platform, to enable teams located in different countries to review the evidence and collaborate with clients in a cost efficient and timely manner. We also provided trial bundling services and document operator services at the trial.

Client: Mid-size law firm

Notes / Considerations / Challenges:

- a. Scanning and OCR of 150,000 pages (60,000 document) paper documents many of which were handwritten and in poor condition.
- b. Creation of trial bundles was done under an extremely compressed timeframe as the Client failed to obtain court approval for an extension of time.
- c. The initial plan to house the scanned documents in an online eDiscovery platform had to be aborted due to budgetary constraints.
- d. In light of the impossible timelines we faced, our team developed a proprietary trial bundling software (now known as "Evidence Organizer") that created an hyperlinked e-bundle with an embedded full text (open source) search engine.
- e. The digitization exercise and the use of Evidence Organizer marked a turning point as it helped the end client locate a very critical document that the lawyers had not been able to locate before this.

4. High Court Suit involving employee allegedly mark-up bills for a percentage share of the excess billing.

Scope of Engagement : Suit did not involve an eDiscovery protocol but an eDiscovery system was deployed by Client to facilitate collaborative email review with the end-clients.

Client: Mid-sized law firm

Notes / Considerations / Challenges:





a. This was a case where email time metadata was extremely critical and reviewers needed to be able to look through the evidence based on entire message families, email threads and message family duplicates.

5. Commercial Dispute over IT Contract

Scope of Engagement : Process .psts to PDFs, and create lists of documents using email metadata with separate fields for date and email description, and attachments listed and named under the parent email, including hyperlinked bundle

Client: Big 5 law firm

Notes/Challenges/Special Considerations :

- a. Voluminous Excel sheets requiring careful human quality assurance review and manual adjustment of print settings.

6. Potential breach of fiduciary duty by departing director of MNC company

Scope of Engagement : We were tasked to find potentially incriminating evidence in the personal computer used by the director, to support a potential cause of action. We used a mix of early case assessment analytic functions and keyword searches to locate sufficient evidence in the personal computer to link the director to the establishment of a competing business during the time that he was employed as a Director in the MNC.

Client: Small law firm

Notes/Challenges/Special Considerations :

- a. There was very little information regarding what the wrongdoing, if any, was.
- b. Using very powerful graphical early case assessment eDiscovery software, we were able to carry out the investigation very cost effectively. The software helped us prioritise the areas of investigation and to identify the smoking guns.

nuix eDISCOVERY with nuix WEB REVIEW & ANALYTICS

Right, from the start

Nuix builds confidence into your eDiscovery process from the outset. The patented Nuix Engine processes all relevant evidence with unmatched speed and thoroughness. Our web-based workflow automation, collaboration, and analytics tools let you make early case assessments with all the facts at your fingertips.

Set a winning case strategy

With Nuix eDiscovery technology, you can quickly and comprehensively answer the fundamental questions of any matter: Is the claim true, what is your risk exposure, do you want to pursue it, and what case strategy will you take.

Mitigate risks

Ensure a consistent, repeatable, and defensible process across each item and data source. Handle all available evidence with forensic precision to avoid costly surprises.

Maximize flexibility

Our desktop and web applications give you the flexibility to work the way that suits you. You can:

- Automate workflows with Nuix Director, conduct collaborative reviews with Nuix Web Review & Analytics, or get your hands dirty with the powerful eDiscovery Workstation—all working from the same Nuix case file
- Use Nuix throughout the discovery process or combine it with your choice of other technologies as a best-of-breed workflow
- Divide case files into multiple sub-cases, or create large compound cases to handle evidence most efficiently for the size and requirements of the case
- Easily hand over work from corporate customers to litigation support vendors by sharing a Nuix case file.

WORK WITH FACTS, NOT JUST NUMBERS

In the time it takes other technologies to count how many responsive items you have, Nuix makes all the evidence available for search, analysis, and review. You can quickly understand the strength of your negotiating position, meet deadlines, set your case strategy based on knowledge of the key facts, and stay steps ahead of litigants, auditors, and regulators.



Massive Scalability

Nuix eDiscovery technology works with evidence of any size from small laptop collections to multi-terabyte-sized multi-server data sets.



Get Perspective Earlier

Use the built-in text analytics such as auto-classification, clustering, topic modeling, text summarization, deduplication, and near-duplicates to search, understand, classify, and minimize data sets. And use perspectives to highlight quickly how your searches are impacting your data.



Deploys Wherever Your Data Is

You can install our highly portable software behind the firewall, in the field, and on cloud infrastructure—wherever the evidence is located. Because all our eDiscovery technologies work from a single Nuix case file, you can complete the eDiscovery process without moving data or converting formats from one tool to another.



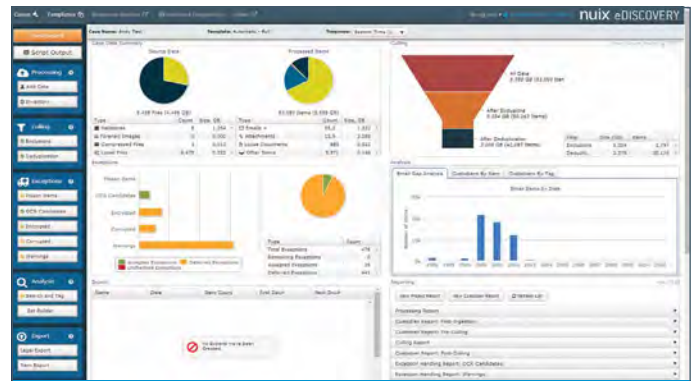
Work the Way You Want

Nuix fits easily into your eDiscovery ecosystem, offering a choice of interfaces to suit everyone's experience and skill level—from simple web interfaces to desktop applications for power users. You can collect, process, search, analyze, review, and produce digital evidence within Nuix, or ingest forensic images from other applications and export to your preferred review platform.

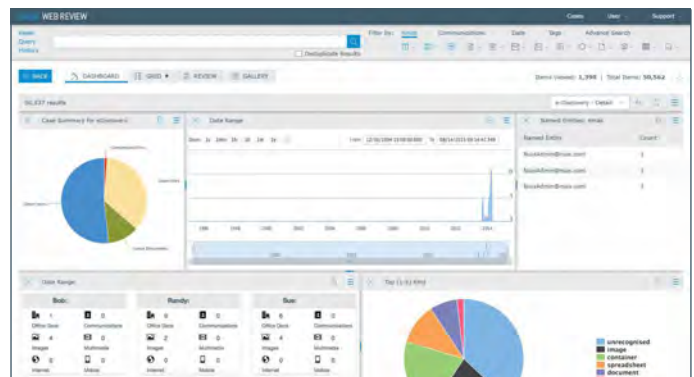


Bridge the Gap Between Enterprises and Service Providers

Nuix makes it easy to share work between enterprises and service providers. Nine of the world's ten largest litigation support vendors and a growing number of corporations and government agencies use our technology, which makes the hand-over process as simple as transferring a Nuix case file.



The Nuix Director web application harnesses the power of the Nuix Engine into a consistent, repeatable and highly automated eDiscovery process.



Use multiple visualizations to drill into the data and highlight relevant facts fast.

HOW WE DO IT!

The Nuix Engine uses a patented parallel processing technology to index and search unstructured data at the binary level with unmatched speed and forensic rigor.

Nuix supports hundreds of file types and processes the formats enterprises use to store their data including:

- File shares
- Email servers
- Email archives
- Cloud repositories
- Microsoft Exchange, Exchange Web Services, and SharePoint
- Mobile devices.

BUILD CONFIDENCE INTO YOUR eDISCOVERY PROCESS

Using Nuix eDiscovery with Director and Web Review & Analytics you can:

- Process more data and more file types faster with forensic precision
- Employ a wide range of powerful analytics and visualizations such as relationship networks
- Utilize advanced search techniques to find key facts intuitively
- Process data directly from Office 365 and a variety of other cloud repositories
- Collaborate earlier with subject matter experts and stakeholders.

Only Nuix gives you the confidence that you've captured all the data you need to make the right decision.

NUIX eDISCOVERY SOLUTIONS

NUIX eDISCOVERY

Process vast quantities of unstructured data in almost any format and location.

NUIX DIRECTOR

Create and automate templates for efficient, repeatable, and defensible eDiscovery workflows.

NUIX WEB REVIEW & ANALYTICS

Share, search, analyze, and collaborate on case data using a web browser.

NUIX LEGAL HOLD

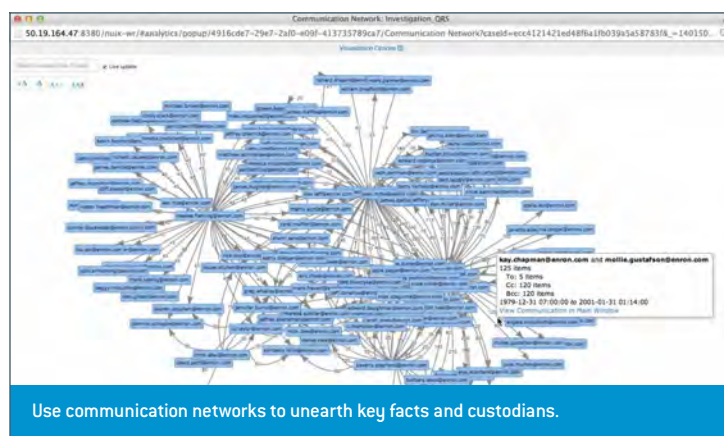
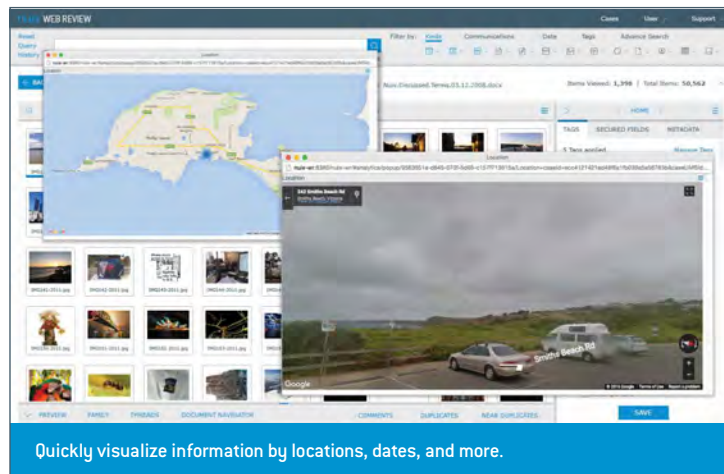
Notify users of their legal hold obligations and track compliance.

NUIX COLLECTION

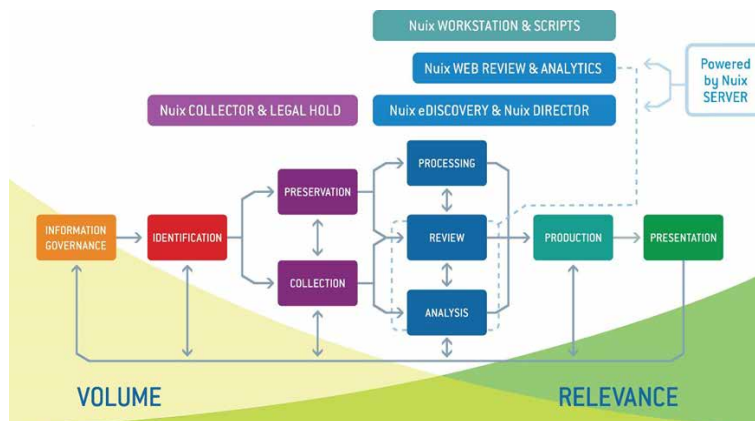
Automate the collection of unstructured data from multiple locations and sources.

NUIX CORPORATE DISCOVERY

Deploy Nuix's collection, discovery, and web review technologies in a single server behind the firewall.



Nuix's eDiscovery and Information Governance solutions lend you the power of the patented Nuix Engine throughout the discovery process and beyond.



NUIX SUCCESS

“BIG FOUR” ADVISORY FIRM

A global advisory firm needed to conduct rapid eDiscovery case assessment, with a catch: The data couldn't leave its offices in South America. The firm built an entire discovery solution, using a competing technology that required multiple servers, but this hardware was held up in customs. Nuix provided a portable eDiscovery processing and review solution on a single high-powered laptop.

Results

- Deployed a complete high-powered eDiscovery solution that fit in carry-on luggage
- Processed more than a million records from multiple sources within days
- Enabled the project team to review data remotely in a web browser and establish its case position quickly

CONSULTING FIRM

A legal services and digital forensics consulting firm was working on a large litigation matter involving more than 200 custodians across 10 locations. While the data was still being processed, the client urgently needed to review the data to meet a court deadline. The consulting firm used Nuix Web Review & Analytics to provide instant access to the processed data for the law firm's team of five reviewers.

Results

- Made processed data instantly accessible through a web browser
- Avoided set-up and infrastructure costs of a review platform
- Delivered an intuitive interface that lawyers could use with minimal training

LITIGATION SUPPORT VENDOR

The increasing size and frequency of eDiscovery projects had a litigation support vendor seeking ways to reduce the workload of its analysts while ensuring consistent and defensible results. Implementing Nuix Director gave the firm a way to capture the technical expertise of its eDiscovery specialists.

Results

- Nuix Director workflow templates locked down settings and methodologies for the whole team
- This enabled single-click execution of straightforward discovery processing tasks
- Streamlining the process left more time for value-added services such as project strategy and consultation

TO FIND OUT MORE VISIT:

nuix.com/eDiscovery

ABOUT NUIX

Nuix protects, informs, and empowers society in the knowledge age. Leading organizations around the world turn to Nuix when they need fast, accurate answers for investigation, cybersecurity incident response, insider threats, litigation, regulation, privacy, risk management, and other essential challenges.

North America

USA: +1 877 470 6849

» Email: sales@nuix.com

EMEA

UK: +44 203 786 3160
DE: +49 711 7811 8630

» Web: nuix.com

APAC

Australia: +61 2 9280 0699

» Twitter: [@nuix](https://twitter.com/nuix)

